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Original Articles.

THE NATURE AND SIGNIFICANCE OF LEUCOCYTOSIS.*

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When Cohnheim demonstrated that inflammation and suppuration are due to an emigration of the white corpuscles, a great advance was made in pathology. Since then the importance of the white blood corpuscles has been increasing with each year.

CELL TYPES.

If leucocytes consisted of but a single variety of cells, with common functions, the study of leucocytosis would be reduced to a simple process. It would then be sufficient simply to ascertain the degree of leucocytosis by estimating the total number of leucocytes to a cubic millimeter of blood.

It is well known, however, that the white blood corpuscles consist of several more or less distinct varieties. Many attempts have been made to differentiate these types, resulting in not a little confusion in the nomenclature thus introduced.

1. A classification has been based on the nature of the behavior of the cells to microchemic reagents, giving us acidophile, basophile and neutrophile cells.

2. Another has been based on the form and number of nuclei, giving us small and large mononuclear, transitional, polymorphonuclear and polynuclear forms.

3. A third classification has been made in accordance with the supposed origin of each type, giving lymphocytes, splenocytes, myelocytes and mast cells.

4. The nature of the granules has given us a fourth classification, non-granular, finely granular and coarsely granular cells.

5. A classification according to functions would probably be most useful if we knew more of their subtle nature. The functions of these small organisms are so obscure that such a classification must be left for further research to perfect. Metchnikoff, however, has made the nearest approach to a classification according to this method that has yet been attempted, and has brought to our notice phagocytes and non-phagocytic cells.

LACK OF UNIFORM STANDARDS.

In addition to a lack of uniformity in the classification of leucocytes, the relative percentages accepted as normal for each type have been given a comparatively large range of variation. There has also been a lack of uniformity among hematologists in the technic adopted. Many staining methods are in vogue, varying materially in their ability to reveal the characteristics of the cell elements, which further increases the difficulty in properly classifying cells. By adopting a definite technic uniform morphologic characteristics are revealed; a true picture of each cell type is formed, and a correct classification of leucocytes becomes an easy task.

(A) VARIATION OF THE CELL TYPES IN HEALTH.

Two factors govern the number of cells belonging to the various cell types in health as well as in disease: (*a*) The total leucocyte count, and (*b*) the relative percentages for the cell types.

Under changing conditions the normal leucocyte count may vary from 5,000 to 10,000 cells for each c.mm. of blood. These estimates are accepted as the minimum and maximum normal counts.

In health, the upper and lower percentage limits are moderately well established for each cell type. The following minimum and maximum normal percentages for the respective cell types may be accepted as representing the normal percentage range: Small lymphocytes, 22-30; large lymphocytes, 5-9; transitionals, 1-2; polymorphonuclears, 60-70; eosinophiles, 1-2.

The differential percentages taken alone are of little clinical value. It is only when the total leucocyte count is considered in connection with these percentages that the number of cells belonging to the respective cell types can be approximately estimated.

To estimate the cell variation for the respective cell types for normal blood, the calculation is made on the basis of the minimum and maximum normal leucocyte count (5,000-10,000), each count accompanied by the minimum and maximum differential percentages for each cell type. To illustrate, an estimate of the number of small lymphocytes will be made in accordance with these standards.

(*a*) The minimum normal leucocyte count (5,000), accompanied by the minimum differential percentage (22 per cent.), will place the minimum normal small lymphocyte count at 1,100 cells for each c.mm. of blood; the same count, accompanied by the maximum differential percentage (30 per cent.), will establish the maximum normal small lymphocyte count at 1,500 cells.

(*b*) The maximum normal leucocyte count (10,000), accompanied by the minimum differential percentage (22 per cent.), will place the minimum normal small lymphocyte count at 2,200 cells; the same count, accompanied by the maximum differential percentage (30 per cent.), will establish the maximum normal small lymphocyte count at 3,000 cells.

Therefore, according to these standards, any actual lymphocyte count that is included within these normal extremes (1,100-3,000) may be considered as falling within normal limits.

The following table gives the normal range of the

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cell count for each cell type, based on the foregoing normal standards:

TABLE 1.

	S.L.	L.L.	Trans.	Poly.	Eos.
Minimum and maximum differential percentages for each cell type..	22-39	5-9	1-2	60-70	1-2
Minimum and maximum number of cells for each cell type estimated from the minimum normal leucocyte count (5000).	1100 1500	250 4350	50 100	3000 3500	50 100
Minimum and maximum number of cells for each cell type, estimated from the maximum normal leucocyte count (10,000).	2200 3000	500 900	100 200	6000 7000	100 200

To account for the wide normal variation of the number of cells for the various cell types, as shown in Table 1, we must consider:

1. Causes which affect the actual number of leucocytes.

2. Causes which affect the relative percentages for the various cell types.

First Factor.—It seems to be fairly well established by clinical data that the total leucocyte count varies in health according to the conditions of nutrition. Healthy and vigorous individuals furnish a leucocyte count near the maximum normal limit. On the other hand, persons in feeble health, with poor digestion and assimilation, and weak resisting power, generally furnish a leucocyte count near the minimum normal limit. Consequently, under certain conditions of nutrition, a leucocyte count of 5,000 may be considered normal, while under other metabolic conditions a count of 10,000 is normal.

Second Factor.—The wide normal range for the actual number of cells belonging to the respective cell types may be further explained on the ground that in certain apparently normal individuals the minimum differential percentage is present for certain types, such a condition always being accompanied by a corresponding relative increase in the percentage of certain other types. (*a*) This percentage reciprocity is almost always found to exist between the small lymphocytes and the polymorphonuclear cells; (*b*) it may, however, exist between the small lymphocytes and the large mononuclears.

It at once becomes apparent that the percentage reciprocity so often found in cell type study exists between a non-phagocytic cell type and some one or more of the phagocytic types.

The prevailing tendency, when there is a deviation from the normal percentages, is a fall in the small lymphocyte percentage. A low small lymphocyte percentage may result from various causes:

(*a*) From some cause which diminishes the actual number of small lymphocytes, without being accompanied by any apparent change in the total leucocyte count.

(*b*) From an increase in the leucocyte count, without being accompanied by any material change in the actual number of small lymphocytes.

(*c*) From causes which produce both a decrease in the actual number of small lymphocytes and an increase in the total leucocyte count.

To observe the relation which these respective conditions bear to the physical state of the patient, and to ascertain if these relations possess any significance as to the state of the resisting power, are problems which should receive our closest attention.

It is apparent that with a small lymphocyte count near the minimum normal limit (1,100), accompanied by a leucocyte count close to the maximum normal limit (10,000), the relative percentage of small lymphocytes will fall to 11 per cent. Furthermore, that with a small lymphocyte count near the maximum normal limit (3,000), accompanied by a leucocyte count close to the minimum normal limit (5,000), the relative percentage of the small lymphocytes will rise to 60 per cent. Therefore, if the normal range for the actual number of small lymphocytes lies between the extreme limits of 1,100 and 3,000 cells, and if the normal range for the total leucocyte count lies between the extreme limits of 5,000 and 10,000, the possible relative percentage limits for the small lymphocytes will fall between 11 per cent. and 60 per cent.

The following table shows the relative percentage variations for a definite cell type count (small lymphocytes), when accompanied by a varying leucocyte count:

TABLE 2.

	Minimum leucocyte count, 5000. Per cent.	Average leucocyte count, 7500. Per cent.	Maximum leucocyte count, 10000. Per cent.
Minimum small lymphocyte count—1100	22	14.66	11
[1]Average small lymphocyte count—1950	39	26	19.5
Maximum small lymphocyte count—3000	60	40	30

These facts make it imperative that we should not depend on relative percentages alone, but that we should ascertain the actual number of cells belonging to each cell type if we hope to correctly interpret the relations existing between cell types, or if we hope to ascertain the true relations which the cell types bear to the body or to its inherent vital forces. Relative percentage fluctuations are affected by any influences which call for phagocytic action on the part of the cells.

AVERAGE NORMAL STANDARDS.

For practical work it is necessary to adopt definite average normal standards. For this purpose 7,500 is generally accepted as the average normal leucocyte count. And for average normal relative percentages those suggested by Kanthack have been adopted, viz.: Small lymphocytes, 26 per cent.; large lymphocytes, 7 per cent.; transitionals, 1 per cent.; polymorphonuclears, 65 per cent.; eosinophiles, 1 per cent.

This table shows the cell count for each cell type, estimated from the foregoing average normal standards:

TABLE 3.

	S.L.	L.L.	Trans.	Poly.	Eos.
Average normal leucocyte count 7500.					
Average normal differential percentage for each cell type.....	26	7	1	65	1
Average normal number of cells for each cell type.....	1950	525	75	4875	75

(B) VARIATION OF THE CELL TYPES IN LEUCOCYTOSIS.

For our present purpose, leucocytosis will be interpreted as an increased functional activity of the body cells. This phenomenon exists normally within narrow limits in connection with the digestive process and other physiologic activities.

The many changes which take place in the food products from the time they are introduced into the body until they are rendered suitable for cell food are the result of cell activity. The processes of life seem to come and go in rhythmic cycles. A period of rest follows a period of activity; each period of activity is again followed by rest. This is apparently a universal law. To live, an organism must eat. If it eats, it must work. If it works, it must rest. Time has been divided in accordance with this principle. Day and night, the seasons of the year, are evidence of the rhythmic cycles of life.

Digestive leucocytosis is but the evidence of this law, revealed in cell phenomena. Whatever the mode of activity or the cause of the activity, this law is found to

1. For the average normal standards see Table 3.

exist. Whenever the law is broken, from whatever cause, a disequilibrium of the co-operative functions of the body is a natural result. The continuance of this resultant inharmonious relation between the co-operative functions brings about a transition from a normal to an abnormal state—a transition from health to disease.

Every organism, however, is endowed with an inherent tendency to obey this law, and resists any and all influences which tend to interfere with its action. The principle of self-preservation and self-protection, as universally revealed in living organisms, are but manifestations of the law of the rhythmic cycles of action and repose.

Pathogenic micro-organisms are cell foes. When they gain an entrance into the animal organism they at once antagonize, not only the fixed but the wandering cells of the body. They interfere with the normal cycle rhythm of cell life. The result is an increased and prolonged cell activity without normal quiescent states. The evidence of this constant cell activity is revealed in a continuous leucocytosis, a leucocytosis which often passes far beyond the bounds of a normal physiologic leucocytosis.

To correctly interpret a leucocytosis, one must consider the nature of the factors producing the disequilibrium of cell functions. It is but natural, therefore, that we should inquire into the nature of the cell changes found in leucocytosis, as well as the causes producing them.

It is equally important to ascertain if definite relations exist between these cell changes and the life potential of the larger organism.

The nature of the cells supplied, when an organism reacts in its own defense, may have more significance than we are inclined to give them. It can scarcely be questioned that distinct and independent functions belong to each of the cell types. It is important, therefore, to ascertain to what degree each cell group cooperates in an effort at organic self-protection.

It is generally conceded that most importance is attached to the cell types whose increase chiefly constitutes a leucocytosis. The impression prevails that the most significant cell phenomena in leucocytosis are confined to the polymorphonuclear variety. In recent studies I have been impressed with phenomena belonging to the small lymphocyte group; although not marked by such pronounced extremes as are observed in the polymorphonuclear types, they at least seem to convey a weightier significance.

It is conceded that the cell types owe their origin to distinct and independent sources. This being accepted, it would be but a natural step to infer a definite relation between these cell types and the cell-generating organs producing them.

The following tables show distinctly that the great bulk of cell increase in leucocytosis belongs to types possessing phagocytic power, namely, the large mononuclear, transitional and polymorphonuclear forms. These varieties possess the power of locomotion to a marked degree and are able to englobe foreign bodies.

The sudden and often profound increase in these varieties can not, therefore, be attributed to an increased functional activity of the organs producing these cells. On the other hand, their sudden disappearance as leucocytosis subsides can not be attributed to cell lysis, since the evidence of cell death and the débris of disintegrating cells is absent.

The sudden appearance and disappearance of the cells constituting leucocytosis must, therefore, be explained on other hypotheses. The most probable explanation for the sudden and profound variation in the number of cells should conform to the very nature of these cells—based on their ability to migrate to and fro from the circulating blood, to cling to the walls of the blood vessels, and to retire to and move from the deeper organs of the body.

Their presence or absence in the circulating blood, above or below the number normally found in this medium, would, therefore, seem to be governed by the presence or absence of certain imperfectly understood chemotactic influences. In reality, it can not be claimed on any means of interpretation at our command that the actual number of cells belonging to the phagocytic types found in the circulating blood in leucocytosis bears any significant relation to the state of the organs producing them, their great numerical variation depending largely on their ability to migrate.

This, however, can not be affirmed of the other cell types not included in the phagocytic forms, namely, the small lymphocytes and the eosinophiles. The eosinophile cells are frequently entirely absent when a crisis exists in the organism sufficient to produce a leucocytosis. These cells possess the power of locomotion and may pass to other regions for specific purposes. It has been claimed on good authority, however, that during the existence of a profound infection the eosinophile cells lose their granules, which cause them in turn to lose their identity. This fact makes it difficult to establish a definite relation between the actual number of eosinophiles in the circulating blood and the state of the organs producing them, or the organism as a whole.

This leaves but one other cell type to be considered—small lymphocytes. Small lymphocytes are not endowed with the power of locomotion to any definite degree, nor the power of englobing foreign bodies. These cells, therefore, can not in any degree be considered phagocytic.

Their number in the circulating blood, therefore, can not be increased or diminished by means of any inherent power possessed by the cells themselves. They are present in large or small numbers as a result of the functional activity of the organs producing them. There seems, therefore, to be good reason for assuming a significant relation between the actual number of these cells in the blood and the state of the cell-producing organs recognized as their source.

By most authorities small lymphocytes are recognized as young cells. Cell genesis being one of the most potent and one of the most important functions of an organism, it is naturally inferred that the state of this function sustains an important relation to the resisting power of the organism.

The following study has been made for the special purpose of ascertaining the possible existence of a definite relation between the number of young cells in the circulating blood and the inherent resisting power of the patient. The clinical material thus far accumulated has not been sufficiently extensive, nor the time sufficiently long, to enable the formation of mature and positive deductions.

The differential count of the small lymphocytes in leucocytosis is almost always relatively decreased. This accounts for the statement frequently made that their actual number is decreased. I was also of this opinion until I began to estimate the actual number of cells belonging to the various cell types in health and disease.

Having collected a series of cases in which inflammatory leucocytosis existed, it became apparent that, although the relative percentage of the small lymphocytes

is always reduced, their actual number frequently remains close to normal, and occasionally is found considerably increased.

In another set of cases in which leucocytosis existed, it was observed that, although the leucocytoses were well marked, the actual number of small lymphocytes to each c.mm. of blood was greatly reduced, often falling far below the minimum normal limit. It was soon recognized as a significant fact that the cases belonging to the latter class were critically ill, and often terminated fatally. This led to a more extended study of cell types for the purpose of ascertaining their diagnostic and prognostic significance.

The following cases are reported for the purpose of comparing the clinical histories with the blood changes accompanying them. The blood chart accompanying each case records the date of each blood study, accompanied by the leucocyte count, the relative percentages and the actual number of cells belonging to each cell type. Following the blood charts and clinical histories, each case is taken up separately with an attempt to interpret the associated cell type phenomena.

CASE 1.—Mrs. C. W. E. Appendicitis.

Date.	White cells.	S. L.	L. L.	Trans.	Polymor.	Eos.
April 13, 1898	30,600	5	11	3	81	0
		1,530	3,366	918	24,786	0
April 14, 1898	22,200	15	10	1	73	1
		3,330	2,220	222	16,206	222
April 16, 1898	9,400	24	14	3	58	1
		2,256	1,316	282	5,452	94
May 21, 1898	20,400	7	8	0	85	0
		1,428	1,632	0	17,340	0
May 22, 1898	15,700	15	13	2	70	0
		2,355	2,041	314	10,990	0
May 24, 1898	10,500	34	12	2	51	1
		3,570	1,260	210	5,355	105
May 25, 1898	9,500	48	12	0	39	1
		4,560	1,140	0	3,705	95
May 28, 1898	8,400	41	7	0	51	1
		3,444	588	0	4,284	84
June 3, 1898	7,900	41	5	0	53	1
		3,239	395	0	4,187	79

History.—On April 8, 1898, the patient was seized with pain in lower abdomen, followed by chill, vomiting, tympanitis and fever; the pains centered in the right iliac region, but no palpable tumor could be detected. The symptoms continued until April 13, when a consultation was held. A blood study revealed a leucocytosis of 30,600. April 14, leucocytosis subsiding and symptoms abating. Improvement continued for one week. May 21, liberal diet allowed, followed by slight relapse. Steady improvement for two weeks.

Operation.—June 4. A chronically inflamed appendix found, bent at a right angle and bound down by an adhesion. Drainage had taken place into the intestine. At the angle of constriction the appendiceal wall had sloughed almost to the point of perforation. Another acute attack would probably have resulted in perforation and general peritonitis. Patient made rapid recovery.

CASE 2.—Mr. J. E. H. Appendicitis.

Date.	White cells.	S. L.	L. L.	Trans.	Polymor.	Eos.
March 29, 1898	22,700	10	7	1	82	0
		2,270	1,589	227	18,614	0
March 30, 1898	17,200	12	7	1	80	0
		2,064	1,204	172	13,760	0
April 1, 1898	11,700	25	8	1	65	1
		2,925	936	117	7,605	117
April 4, 1898	17,300	13	13	0	73	1
		2,249	2,249	0	12,629	173
April 5, 1898	18,400	10	7	2	81	0
		1,840	1,288	368	14,904	0
April 6, 1898	17,500	15	9	0	76	0
		2,625	1,575	0	13,300	0
April 18, 1898	9,000	28	8	9	54	1
		2,520	720	810	4860	90

History.—Symptoms developed much the same as in Case 1. After numerous consultations doubt remained as to the nature of the trouble. A blood study finally revealed a leucocytosis of 22,700, which at once excluded typhoid fever.

Treatment.—The expectant plan of treatment was adopted. Daily blood studies were made and the clinical symptoms carefully watched. A good recovery followed without operation.

CASE 3.—Mr. S. N. C. Appendicitis.

Date.	White cells.	S. L.	L. L.	Trans.	Polymor.	Eos.
Dec. 5, 1898	23,000	10	6	0	83	1
		2,300	1,380	0	19,090	230
Dec. 6, 1898	25,000	5	4	0	90	1
		1,250	1,000	0	22,500	250
Dec. 7, 1898	19,700	Differential count not made.				
Dec. 8, 1898	16,300	Differential count not made.				
Dec. 10, 1898	14,800	8	10	0	80	2
		1,184	1,480	0	11,840	296

History.—In this case the trouble was recognized as appendicitis from the beginning. Patient's previous health had been impaired. Operation advised, but refused.

Treatment.—Expectant plan of treatment followed. The leucocytosis slowly subsided, but with each day the patient's strength seemed to be diminishing. Slow recovery without operation.

CASE 4.—Miss H. Appendicitis.

Date.	White cells.	S. L.	L. L.	Trans.	Polymor.	Eos.
Oct. 22, 1903	28,000	5	4	1	90	0
		1,400	1,120	280	25,200	0

History.—Patient treated for typhoid fever. At the expiration of two weeks, the symptoms being somewhat unusual, a blood study was requested, which revealed a leucocytosis of 28,000.

Treatment.—Patient immediately sent to hospital and operated on. Perforated, gangrenous appendix found and a large quantity of pus diffused throughout the abdominal cavity. Speedy recovery followed.

CASE 5.—Mr. H. D. Appendicitis.

Date.	White cells.	S. L.	L. L.	Trans.	Polymor.	Eos.
July 30, 1897		5	5	0	90	0
Aug. 2, 1897		4	6	2	88	0
Aug. 4, 1897	47,500	7	5	1	87	0
		3,325	2,375	475	41,325	
Aug. 5, 1897		5	4	0	91	0

History.—The symptoms were obscure from the beginning, resembling in some respects both typhoid fever and appendicitis. A surgeon was called early in the attack and remained in attendance. Frequent examinations failed to reveal tenderness or induration in region of appendix.

Blood Examination.—The prevailing opinion favored typhoid until August 2, when blood films were taken, a study of which indicated a distinct leucocytosis. A second differential blood count gave evidence of a distinct leucocytosis. On August 4 a third blood study revealed a leucocytosis of 47,500. A careful examination at this time revealed a deep-seated tenderness in the right pelvis posteriorly, near the spine.

Treatment.—An immediate operation was suggested, but refused by the family. Consent was finally given and operation performed thirty-six hours later. A retroverted appendix with extensive gangrene and perforation, with large quantities of fecal pus in abdominal cavity, told the story which the leucocytosis had foretold six days before. Death speedily followed operation.

CASE 6.—Mr. J. H. S. Convalescent tuberculosis.

Date.	White cells.	S. L.	L. L.	Trans.	Polymor.	Eos.
March 21, 1898	18,200	15	13	2	50	20
		2,730	2,366	364	9,100	3,640
March 28, 1898	8,000	21	9	2	51	17
		1,680	720	160	4,080	1,360
Oct. 24, 1902		24	9	1	63	3

History.—Inflammatory leucocytosis developing in a tuberculous patient well advanced in convalescence, the result of a self-administered hypodermic injection of serum. Leucocytosis rapidly subsided. Patient continued to improve, and four years and six months later all evidence of the disease had disappeared.

CASE 7.—Mr. A. T. C. Advanced tuberculosis.

Date.	White cells.	S. L.	L. L.	Trans.	Polymor.	Eos.
March 17, 1898	15,000	8	13	2	73	4
		1,200	1,950	300	10,950	600
April 1, 1898	10,500	14	10	1	71	4
		1,470	1,050	105	7,455	420

History.—Acute moderate leucocytosis similar to that observed in Case 6, and produced in a similar manner. This patient, however, was well advanced in tuberculosis. The patient failed rapidly and died six months later.

CASE 8.—Mr. J. L. G. Pneumonia associated with advanced tuberculosis.

Date.	White cells.	S. L.	L. L.	Trans.	Polymor.	Eos.
Oct. 20, 1900....		4	9	1	86	0
Oct. 22, 1900....		4	9	2	85	0
Oct. 23, 1900....	16,700	2	6	0	92	0
		334	1,002	0	15,364	0

History.—Patient in advanced stage of tuberculosis. After exposure pneumonia developed, with rapidly fatal termination.

CASE 9.—Mrs. F. E. S. Pyosalpinx.

Date.	White cells.	S. L.	L. L.	Trans.	Polymor.	Eos.
Jan. 12, 1903....	25,000	9	5	1	84	1
		2,250	1,250	250	21,000	250
Jan. 13, 1903....	29,000	3	6	1	90	0
		870	1,740	290	26,100	0
Jan. 15, 1903....	33,000	4	6	1	89	0
		1,320	1,980	330	29,370	0
Jan. 17, 1903....	10,000	6	6	3	85	0
		600	600	300	8,500	0
Jan. 19, 1903....	20,000	9	5	1	85	0
		1,800	1,000	200	17,000	0
Jan. 21, 1903....	14,000	11	9	1	78	1
		1,540	1,260	140	10,920	140
Jan. 22, 1903....	16,000	6	11	1	82	0
		960	1,760	160	13,120	0
Jan. 27, 1903....	21,500	4	6	1	89	0
		860	1,290	215	19,135	0
Jan. 28, 1903....	18,000	4	6	1	89	0
		720	1,080	180	16,020	0
Jan. 29, 1903....	14,000	5	3	0	92	0
		700	420	0	12,880	0
Feb. 2, 1903....	13,000	8	8	0	84	0
		1,040	1,040	0	10,920	0

History.—Patient gave a history of frequent inflammatory attacks, confined to region of right tube and ovary. Evidence of an acute attack developed about one week before date of first blood study, accompanied by clinical symptoms of increasing severity. On January 12 the following clinical picture was given: High fever, rapid pulse, occasional chills, severe pain; symptoms continued to increase until January 15, when operation was performed.

Right ovary and tube were seriously involved, but the inflammatory condition was apparently localized. January 19 to 21, slight evidence of reaction. January 22, symptoms indicating a very critical condition, which continued with no evidence of improvement. Patient died February 23, twenty-four hours after the last blood study.

CASE 10.—Mrs. U. H. B. Subacute pyosalpinx.

Date.	White cells.	S. L.	L. L.	Trans.	Polymor.	Eos.
May 13, 1904....	19,000	11	9	2	78	0
		2,090	1,710	380	14,820	0
May 17, 1904....	27,000	8	5	1	86	0
		2,160	1,350	270	23,220	0

History.—Frequent attacks of pelvic inflammation. At the time of the blood study the patient had been confined to her bed for several days. The right tube was involved and the pelvic organs were cemented in a solid mass. Resolution was rapid. Recovery without operation.

INTERPRETATION OF CELL TYPE PHENOMENA.

It becomes apparent, on inspecting the blood charts of the foregoing cases presenting leucocytosis, that in certain cell types the actual count shows a more or less pronounced decrease, while for certain other types the count shows a pronounced increase.

The types showing a decrease invariably belong to the non-phagocytic groups (small lymphocytes and eosinophiles), while the types showing an increase belong to the phagocytic groups (large mononuclear, transitional and polymorphonuclear).

The interpretations and deductions which follow are founded on the following premises:

(*a*) That a leucocytosis is the evidence of an effort on the part of an organism to protect itself.

(*b*) That the cells supplied in a leucocytosis belong chiefly to the phagocytic groups.

(*c*) That the small lymphocytes, being non-phagocytic cells, indicate the condition of the organism's defense, and therefore may serve as a means of estimating the ability of the organism to endure a severe or prolonged resistance. In other words, the leucocytosis indicates the fighting strength of an organism, and the number of small lymphocytes indicates the character of the endurance.

For the purpose of ascertaining the value of these cell type phenomena a brief review of the foregoing cases will follow. In making comparisons and interpretations it will be necessary to refer frequently to Tables 1 and 3.

Case 1, April 13, presents a well-marked leucocytosis (30,600), accompanied by a small lymphocyte count close to the average normal standard (1,530), indicating a severe infection and a strong resisting power. April 14, presents a diminishing leucocytosis (22,200), accompanied by a pronounced increase in the small lymphocyte count (3,330), passing above the maximum normal limit (3,000), indicating diminishing infection and an increasing resisting power. April 16, presents a leucocyte count close to normal (9,400), accompanied by a slight fall in the small lymphocyte count (2,256), but considerably above the average normal standard (1,950). April 21, again presents a moderate leucocytosis (20,400), accompanied by a reduced small lymphocyte count (1,425), indicating a relapse. May 22, to the end of the case history, presents a decreasing leucocytosis and an increasing small lymphocyte count, passing above the maximum normal limit, indicating a decrease of the infection and a marked increase in the resisting power. Verification: Patient made a good recovery after operation.

Case 2 presents a fluctuating leucocytosis of moderate degree, accompanied by a small lymphocyte count ranging continuously between the average and maximum normal standard (1,950 to 3,000). Interpretation: Moderate infection and good resisting power.

Case 3, December 5, presents a well-established leucocytosis, accompanied by a small lymphocyte count above the average normal standard. December 6, slight increase in the leucocytosis and a distinct fall in the small lymphocyte count, indicating an increased infection and a diminished resisting power. December 10, diminishing leucocytosis and a small lymphocyte count close to the minimum normal standard, indicating a decrease in the infection, with a weak resisting power. Verification: Subsequent recovery after slow convalescence.

Case 4, October 22, presents a well-marked leucocytosis, accompanied by a moderately low small lymphocyte count. Interpretation: Infection moderate, resisting power good; verified by speedy recovery after operation.

Case 5, August 4, leucocytosis profound, small lymphocyte count high, infection severe, resisting power good. A blood study was not made after the infection became general, hence the state of the leucocytosis and the small lymphocyte count at this time is not known.

Too much emphasis can not be placed on the fact that the location and nature of the lesion should always be considered in connection with a leucocyte study. A leucocyte count ever so high, or a small lymphocyte count ever so great, will avail but little if the warnings they give are unheeded until the infection becomes so extensively spread that it has gone beyond the power of any leucocytosis to check, or the strongest resisting power to overcome. Except for the perforation in this case, which permitted the development of a general infection, the prognosis would probably have been favorable.

Case 6, March 21, presents a moderate leucocytosis, accompanied by a small lymphocyte count close to the maximum normal limit: Interpretation: Moderate infection, good resisting power; confirmed by ultimate recovery.

Case 7, March 17, presents a moderate leucocytosis, accompanied by a small lymphocyte count reduced close to the minimum normal limit. Interpretation: Moderate infection and feeble resisting power.

Comment: A comparison of Cases 6 and 7 reveals interesting facts. Both cases are accompanied by a moderate leucocytosis; Case 6 accompanied by a small lymphocyte count 780

above average normal, and Case 7 accompanied by a small lymphocyte count 750 below the average normal standard. The ultimate recovery of Case 6 and the rapidly fatal termination of Case 7 emphasize the significance of the small lymphocyte counts.

Case 8 presents moderate leucocytosis and very low small lymphocyte count. Interpretation: Profound sepsis, very feeble resisting power; case terminated fatally.

Case 9, January 12, presents a well-marked leucocytosis, accompanied by a small lymphocyte count above the average normal, indicating a severe infection and a moderate resisting power. As the case progressed, January 13 to 15, the leucocytosis increased and the small lymphocyte count diminished, indicating an increase in the virulence of the infection and a decrease in the resisting power. January 17, after the operation, the degree of leucocytosis diminished materially and the small lymphocyte count fell to a very low point. January 19 to 21, leucocytosis slightly increased, with distinct increase in the small lymphocyte count, indicating an effort to react. After January 21 the leucocytosis remained practically unchanged, but the small lymphocyte count again fell to a dangerously low point, with no apparent ability to react.

Case 10, May 13, presents a moderate leucocytosis, accompanied by a small lymphocyte count above the average normal standard; May 17, presents a distinct increase in the leucocytosis and a slight increase in the small lymphocyte count. Interpretation: Fighting strength and endurance good; confirmed by a speedy recovery.

RELATION BETWEEN THE SMALL LYMPHOCYTE COUNT AND LEUCOCYTOSIS.

The foregoing interpretations of the cell type phenomena presented in leucocytosis are based on the following possible relations between the small lymphocyte count and the degree and course of the leucocytosis:

A. The Relation of the Small Lymphocyte Count to a High or an Increasing Leucocytosis.—1. A high or increasing leucocytosis, associated with a high or increasing small lymphocyte count, indicates: (*a*) An infection of high or increasing virulency, accompanied by (*b*) a high or increasing resisting power.

2. A high or increasing leucocytosis, associated with a low or decreasing small lymphocyte count, indicates: (*a*) An infection of high or increasing virulence, accompanied by (*b*) a low or diminishing resisting power.

B. The Relation of the Small Lymphocyte Count to a Low or a Decreasing Leucocytosis.—3. A low or decreasing leucocytosis, associated with a high or increasing small lymphocyte count, indicates: (*a*) An infection of a low or decreasing virulence, accompanied by (*b*) a high or increasing resisting power.

4. A low or decreasing leucocytosis, associated with a low or decreasing small lymphocyte count, indicates: (*a*) An infection of a high or increasing virulence, accompanied by (*b*) a low or decreasing resisting power.

The actual number of small lymphocytes may be reduced to a very low point for a short period, but unless they soon show a tendency to materially increase in number, we must infer that the power to react has been exhausted. This observation seems to hold true notwithstanding the leucocytosis may remain at a very high point.

The resisting power of an organism is measured not so much by the degree of the leucocytosis as by the relation of the cell types to the leucocytosis (compare Cases 5 and 6).

It is probably true that each individual is a law unto himself as to his ability to respond in the production of a leucocytosis. The number of leucocytes held in reserve in the deeper tissues, ready to appear in a general call for co-operation, probably varies with each individual. The degree of leucocytosis necessary to protect any particular individual will depend on the nature of the infection. The infection may be too weak to stimulate a pronounced antagonism on the part of the leucocytes. On the other hand, it may be hypertoxic and paralyze the phagocytic or combative power of the cells. The nature of the infection, therefore, is a most essential factor in considering the development of the degree of leucocytosis. This will probably account for the existence of certain infections, without an attending leucocytosis, such as is found in typhoid fever and tuberculosis.

C. Variation of the Cell Types in Abnormal Blood States Unaccompanied by Leucocytosis.—Many important diseases are unaccompanied by leucocytosis, and yet the blood is characterized by pronounced cell type changes. Very little attention has been given to the observation of these changes with the purpose of interpreting their diagnostic or prognostic significance.

Important among the diseases unaccompanied by leucocytosis are typhoid fever and leucocytosis.

TYPHOID FEVER.

Cases 11 and 12 are typical typhoid cases, showing the relation of the cell types.

CASE 11.—Mr. C. W. E. Typhoid fever.

Date.	White cells.	S. L.	L. L.	Trans.	Polymor.	Eos.
Oct. 15, 1903....	8,000	7	5	0	88	0
		560	400	0	7,040	0

This case presents a malignant form of typhoid in which intestinal hemorrhages developed, with final perforation and death. Blood study made at the end of the sixth week revealed a small lymphocyte count far below the minimum normal standard, indicating a state of exhaustion with no power to react, confirmed by a rapidly fatal termination.

CASE 12.—Mr. A. M. P. Typhoid fever.

Date.	White cells.	S. L.	L. L.	Trans.	Polymor.	Eos.
Oct. 13, 1896....	8,500	12	15	0	70	3
		1,020	1,275	0	5,950	255

Blood study made at the end of the sixth week, when patient had already entered on convalescence. The small lymphocyte count registered near the minimum normal limit. Patient made good recovery.

The small lymphocyte counts, as shown in these two cases, become especially significant when interpreted in the light of subsequent results—the number of small lymphocytes in the convalescent case being double the number found in the case ending fatally.

TUBERCULOSIS.

Some eight years ago I became interested in the study of tuberculous blood. My attention at the beginning was confined chiefly to the morphologic appearance of the blood elements as revealed by special staining methods.

It soon became apparent that there was more than a chance relation existing between the percentages of the cell types and the actual condition of the patient. Preliminary reports have already been published on these earlier studies.[2]

After a lapse of these years and the accumulation of clinical material there has been ample opportunity to weigh the data and to arrive at deductions that should stand the test of time.

I wish to give a brief summary of 202 tuberculosis cases studied since my first report, whose subsequent histories have been followed to date. After a careful review of the blood records of these cases, accompanied by their histories as a guide to the interpretation, it became apparent that in almost every instance the small lymphocyte percentage was an accurate criterion of the

2. Med. Rec., Sept. 5, 1896; Med. Rec., Nov. 17, 1896; THE JOURNAL A. M. A., Oct. 23, 1897.

real condition of the patient at the time the blood count was made. These cases have been divided into three groups, governed by the state of their small lymphocyte percentages.

Class 1.—This includes all cases in which the small lymphocyte percentage went to 10 per cent. or lower. The subsequent histories of these cases have been carefully gathered, with the following significant results:

Apparent recoveries	1
Convalescent	8
Disease progressing	4
Deaths	56
Total	69

It should be especially noted that for the eight cases included as convalescents, and the single case of apparent recovery, the low small lymphocyte percentage was the exception. The low percentages in these cases were found when the patient first came to Colorado, or during a temporary relapse.

Class 2.—This includes all cases in which the small lymphocyte count was never found to pass above 20 per cent. or below 10 per cent. It should be noted that only a single blood study was made for a number of cases included in this class. Had repeated studies been made, higher counts would no doubt have been found in those showing apparent recovery or marked convalescence, and lower counts in those terminating fatally, or in which the disease advanced. Results to date:

Apparent recoveries	3
Convalescents	11
Disease progressing	7
Deaths	32
Total	53

Class 3.—This includes all cases in which the small lymphocyte count was found at any time to pass above 20 per cent. Results to date:

Apparent recoveries	39
Convalescents	15
Disease progressing	4
Deaths	22
Total	80

For the 22 fatal cases in this class the high small lymphocyte count was exceptional in 12; three made marked improvement and died suddenly of pneumonia as a result of exposure; two made rapid improvement and relapsed after assuming heavy business responsibilities before convalescence had been well established, and one died as the result of an operation.

CELL TYPE PHENOMENA IN TUBERCULOSIS.

(*a*) Well advanced tuberculous cases, or cases belonging to any stage of the disease, with feeble resisting power, give a low small lymphocyte count.

(*b*) Tuberculous patients well advanced in convalescence always show an increasing small lymphocyte count.

DEDUCTIONS.

A. Significance of a Low Small Lymphocyte Count.—(*a*) A gradual decrease in the small lymphocyte count is unfavorable. (*b*) When repeated examinations, extending over a long period, give a continuous low small lymphocyte count, an unfavorable prognosis is indicated. (*c*) A prevailing low small lymphocyte count, with an occasional higher count, indicates a temporary effort toward convalescence, with little chance for permanent recovery. (*d*) A gradual increase in the small lymphocyte count, with an occasional low count, indicates an uncertain convalescence.

B. Significance of a High Small Lymphocyte Count.—(*a*) A gradual increase in the small lymphocyte count is favorable. (*b*) When repeated examinations, extending over a long period, give a continuous high small lymphocyte count, a favorable prognosis is indicated.

It may be taken, therefore, as a safe conclusion: 1. That poverty in small lymphocytes exists in connection with a great impairment in body nutrition and cell metabolism. 2. That this condition exists in typhoid fever, tuberculosis, and a variety of debilitated conditions. 3. That it can not, therefore, be interpreted as being characteristic of any particular disease. 4. That whenever it exists it is always to be considered a potent factor when estimated in connection with the history of the case and the associated clinical symptoms.

On the other hand, the lymphocytosis that so frequently accompanies a well-marked convalescence, from a condition in which poverty of lymphocytes previously existed, would seem to indicate a condition of increased physiologic activity, thus corroborating Virchow's theory of a nutritive and formative hyperacidity of a convalescent organism.

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CHRONIC ARTERIAL HYPERTENSION.*

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The renewed interest in blood pressure, from a medical point of view, and the succession of articles by clinicians appearing on the subject, crowned by Janeway's book just off the press, indicate that the question is proving of more than scientific value, and that it is becoming an established element in diagnosis and treatment. The activity in this direction has necessarily been coincident with and limited by the development of practical methods for accurately estimating this symptom, and as these methods come more and more into general usage, the value of their application and the interpretation of the data derived therefrom will gradually assume their rightful position in the collective symposium of each carefully reviewed case. Two years ago, while resident at the Johns Hopkins Hospital, I emphasized the necessity for an accurate estimation of arterial tension, not only in the laboratory and in the especially desperate cases in hospitals and in operating rooms, but in the routine examinations of the general practitioner. At the same time I offered a simple modification of the Riva Rocci principle in the form of a compact portable instrument that could be conveniently used in office or visiting practice.[1]

One phase of this question is now claiming special attention, and has lately been prominently exploited by Dr. Clifford Allbutt,[2] Dr. J. H. Broadbent and Dr. Alfred Stengel, namely, the relation of arteriosclerosis to pulse tension and a differential classification of the former based in part on this relation.

With the advent of accurate clinical methods of studying pulse tension the many problems involving these conditions, which so long have been confused and obscure, are now being gradually elucidated.

The insufficiency of tactile impressions for the recog-

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* Read in the Section on Pharmacology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

1. This instrument I continue to find most satisfactory, now made with a 9 cm. arm-piece. This and the instruments of Stanton and Janeway are the only sphygmomanometers manufactured in this country. It is to be hoped that other instruments will be successively perfected in order to hasten the general adoption of accurate methods for the estimation of this symptom.

2. Allbutt: Trans. Royal Med. and Chir. Soc., London, 1903.

nition of tension is responsible for this confusion, which will be eliminated in time by the application of exact and comparable standards of measurement. The result of this indefinite knowledge has been especially unfortunate, as it has given but slight recognition to the large group of cases which is, from a clinical standpoint, the most important, because most amenable to treatment. This group consists of those cases in which the only manifested sign of disease is an increased arterial tension, without or previous to the development of the organic changes, which alone the clinician usually recognizes as "nephritis" apoplexy, arteriosclerosis or myocarditis. It is true that in practically all these cases a certain degree of cardiac hypertrophy exists, but before the onset of dilatation this hypertrophy may be very difficult of recognition. It is with this class that my paper has principally to do.

Dr. Allbutt divides arteriosclerosis clinically from the view-point of etiology, into three classes: First, involutionary, common in old people, not necessarily dependent on high tension; second, mechanical, the result of long persistent high-blood pressure; third, toxic, resulting from lead or alcohol poisoning, or from syphilis; this form usually occurs in young persons with or without accompanying hypertension.

Primarily, I would insist on an absolute distinction between arteriosclerosis and hypertension. Arteriosclerosis is a pathologic change of tissue for which the physician has no remedy. Arterial tension is a cardiovascular function, the perversion and abnormalities of which the diagnostician can now recognize and should attempt to correct. What Dr. Osler says of cirrhosis of the liver applies to sclerosis of the blood vessels: "Many writers speaking of the curability of certain forms show a lack of appreciation of the essential condition on which the symptoms depend. So far as we have any knowledge, no remedies at our disposal can alter or renew the cicatricial connective tissue which constitutes the materia *peccans* in ordinary cirrhosis."

If we relieve a case of arteriosclerosis, with a vasodilator, we do not alter the amount of fibroid degeneration, we merely correct the hypertension, which may either bear a causal relation to the arteriosclerosis or may be associated with it merely as a distinct manifestation of a mutual causative condition. The value of an accurate and discriminating knowledge of this relationship and association between the organic change in vessel structure and the functional perversion of vascular tension is apparent when we consider that the latter is very amenable to treatment, and is a most potent factor in the production of the former incurable condition, as well as the train of other cardiovascular diseases.

Arteriosclerosis is really a pathologic condition, and has too long overshadowed and been confused with a correct recognition of hypertension as a distinct clinical entity. The more chronic hypertension is emphasized, and the more its presence is detected and its destructive tendencies corrected, the sooner will a large and increasing class of cases be brought under proper treatment; cases that now often are neglected until the kidneys pass albumin, the heart dilates, or a cerebral vessel ruptures. Only 12 per cent. of Broadbent's 16 cases of apoplexy showed senile degeneration of the cerebral vessels; the other 88 per cent. probably depended in greater part for their fatal termination on hypertension, not simply as a complicating or concomitant symptom, but as the underlying causative factor.

Almshouses and asylums afford in the subjects of senility excellent opportunities for the study of arteriosclerosis, and I have to thank the officers of those institutions in Richmond for permission to use the material. Here the arterial changes are often reflected by the poorly nourished brain in a weakened mental condition. Such an arterial alteration frequently persists for years, even at the age of 65 or 70, with an unenlarged heart, or, indeed, with cardiac atrophy, without albuminuria, and with fair general health. Apoplexy is not especially frequent in such cases, which are most typically represented by old women in whom tobacco, alcoholic nephritis, syphilis and overwork do not so frequently complicate the picture. The arterial tension does not usually exceed 140 or 160 mm. Hg, and this is not allowing for the 10 or 15 plus mm. of pressure necessary to compress the sclerosed artery. At postmortem, the arteries of both systemic and cerebral vessels may be in places so calcified as to break in the fingers; instances are not infrequent in these cases of such interference of circulation as to induce dry gangrene of an extremity. These patients may undergo a serious amputation, or perhaps several, and may live for years.

Let us consider quite a different group, typically represented by a large robust-looking man in active successful business life. He may be between 45 and 55, temperate as to alcoholic indulgence, and eats, as he says with some pride, three or even four large meals a day. He is readily accepted for life insurance, and the examiner probably adds in his zeal some complimentary additional remark to the fact that the applicant is an unusually fine specimen. Yet in from two to five years that man may be waterlogged and exhibit embryocardia, or his family physician is surprised to find albumin in the urine, or else without warning he may suffer a stroke of apoplexy, or some evening acute dilatation after dinner may demand payment of the policy. Postmortem, the arteries, excepting a few slight areas of degeneration in the aorta, some dilatation of the cerebral vessels, and more or less hypertrophy of the media in the systemic vessels, are normal. If it is quite true that a "man is as old as his arteries," why should this man die of vascular disease at 50, and another live with pipe-stem arteries for several decades past 60? As a matter of fact, the most extreme grades of arteriosclerosis and calcification are frequently found in those who have outlived the allotted time of man, and who finally die of old age or of a secondary infection, and do not seem particularly prone to fatal forms of vascular disease. Of course, where the sclerosis involves the valves of the heart, the case is quite different, and here the sclerosis, by inducing insufficiency, is the immediate cause of the progressively downward sequence. Further, except in the localized disease of syphilis or during the weakened transition period of beginning degeneration, the thickened vessels of advanced sclerosis do not seem especially to lack resistance, as evidenced, for instance, by the incidence of aneurismal formation.

Hence we must look farther than the arterial wall, *per se*, or the heart, for the primary etiologic factor in many of these cases of early cardiovascular failure. In an examination of a number of cases, there is one symptom which is common to them all; when removed, it is followed by improvement; it increases *pari passu* with the progress of the disease; when artificially in-

creased, it renders the disease worse. This symptom is hypertension, and it thus fulfills the requirements of a causal agent. Some of these patients have sclerosed arteries, but not the majority; some pass albumin in the urine, but only a few; yet all will register a pressure over 160 mm. Hg, and many over 180 mm. Hg.

Furthermore, we know the members, especially the males, of certain families, inherit a tendency toward the early development of this class of cardiovascular and renal disease, and for several generations two-thirds of the males may die before 60 of Bright's disease, apoplexy or heart disease. The members of such families almost invariably show more or less marked hypertension long before any organic lesion is made manifest.

The hypertensive diathesis, if I may use such an expression, is far more clear-cut and definite a condition than the strumous or uric-acid diathesis, of which we hear so much, and it should be so recognized. We can not estimate the tendency to tubercular disease nor to gout, but we can accurately determine the degree of hypertension, and what is better, follow year by year its progress and regulate its tendencies. We are not correct, then, in saying that a "man is as old as his arteries," but we can, I believe, usually prophesy that, other things being equal, longevity will be in inverse proportion to pulse tension.

Broadly speaking, of course, we may not divide organic from functional disease, as we must believe that there always exists some fundamental alteration in structure to account for every functional derangement. However, in the present indefinite state of our knowledge concerning the molecular alterations in living protoplasm, we may still be permitted, for the sake of clearness, a division which later researches may prohibit. In considering the possible underlying causal factors which produce this perversion of function, we find they fall under four main headings, which suggest a clinical classification of chronic hypertension from an etiologic standpoint, as follows: First, arteriosclerosis; second, cardiac, pulmonary, and cerebral compensatory; third, toxic; fourth, primary.

Necessarily, where such a classification of a chronic condition is attempted, the divisions will frequently overlap where more than one causal element is concerned in any fully developed case; for once given a disturbance of function, it may disorder the normal function of other organs, which, in turn, react on the primary condition. Nevertheless, this is the most fruitful method of studying a non-specific disease from a practical clinical point of view, as a recognition of the proper causal agents in any one case gives the only clue toward rational treatment. Thus etiology, though perhaps not admitting such absolutely distinct divisions, is a better basis for clinical classification than symptomology, pathology or empirical therapy.

Arteriosclerosis seems in some cases, perhaps especially in those where the small arterioles are involved, to cause a rise in tension through increased peripheral resistance. In the cases where the larger vessels are markedly affected, there may be no rise in tension.

For many years Dr. Allbutt and Dr. Broadbent alone have opposed the view that nearly all cases of hypertension fall under this head. Dr. Allbutt's classification is distinctly of arteriosclerosis, and must not be confused as representing hypertension. In going over the cases in the Richmond almshouses, few of the examples of advanced sclerosis showed a pressure over 160 mm. Hg, and one case, presenting probably the most advanced sclerosis of any seen, had a pressure in the brachial of 120 mm. Hg. The radial artery seemed to the touch as though made of quill, and was circled by marked ridges and rings. This woman was over 70, and is still active, though her mental condition showed marked senile weakening. The arteries in this case were not tortuous, but almost straight. This calls attention to distinction between actual degenerative sclerosis and the bending and thickening of the artery due to hypertension.

Many marked cases of sclerosis show no tortuosity at all, but, on the other hand, cases with persistent high-blood pressure, almost invariably show bending of the artery, with thickening of the walls, and this may be independent of any marked evidence of sclerosis. Where there is both bending and sclerosis, it would seem probable that this bending had occurred primarily from hypertension, and that the sclerosis had followed as secondary degeneration. It is not by any means correct, then, to consider all thickened tortuous arteries as examples of arteriosclerosis, as is so frequently done. As a matter of fact, early sclerosis seems to prevent marked tortuosity, as one would naturally expect from the relative elasticity of sclerosed and of normal artery wall.

I believe that many cases of thickened tortuous arteries, which are spoken of as cases of arteriosclerosis, are in reality cases of hypertension, with consequent hypertrophy and stretching of the wall, just as the heart hypertrophies and dilates, and that the presence of sclerosis should be considered an independent complicating condition rather than an essential factor. That hypertension favors and may even induce the development of arteriosclerosis, is unquestioned, but to designate every case of thickened bent arteries as an example of arteriosclerosis is a mistaken diagnosis, based on the not infrequent error of taking a resulting condition as the primary factor, especially where the true causal agent is not easily determined.

By the aid of more accurate clinical observation on pulse tension and on arteriosclerosis, I believe the latter will be found to occupy a much less important position in diagnosis and in prognosis than it obtains at present, and that the former will assume more and more of the responsibility of the various symptoms and terminal complications that are now credited to arteriosclerosis. According to my observations, cases of marked hypertension do not usually live long enough to develop a very high grade of arteriosclerosis.

The blood vessels of the brain are frequently unable to withstand rupture by hypertrophy, the heart is apt to dilate, or the kidneys to suffer serious damage, and this before the arterial degeneration has assumed an advanced condition.

The prognosis, in the case of a robust-looking man of 55, with a blood pressure of 200 mm. Hg, even with no arteriosclerosis, is not so good as in the case of a man of 65, with marked sclerosis and a blood pressure of 130 mm. Hg. The former is in daily danger of apoplexy or of cardiac dilatation, while the latter lives along year after year apparently unchanged.

The source of danger in the former case is not primarily the thickened artery or the arteriosclerosis, as the condition is frequently spoken of, but the hypertension. The thickened artery is a physiologic development for self-protection, rather than a source of danger, just as is the cardiac hypertrophy in a case of aortic

insufficiency. If the heart and arteries are able to meet the demands of the hypertension, they may endure the additional strain for years. So that, though we must give hypertension a prominent place in the etiology of arteriosclerosis, and conversely arteriosclerosis must be credited as a causal element in many cases of hypertension, the two conditions frequently interacting in a vicious circle, nevertheless we should carefully distinguish the one from the other.

Another group comprises those cases in which hypertension is dependent on cardiac hypertrophy, either from chronic muscular overexertion or from valvular disease, or on pulmonary obstruction, or cerebral compression. Cardiac hypertrophy is a necessary complication of hypertension; they interact on one another, each augmenting the other. But there are definite cases in which the chronic condition of hypertension depends immediately on the enlarged heart, although the hypertrophy was originally produced by a temporary hypertension, dependent on transitory causes. For example, athletes and worn-out pugilists almost invariably exhibit, previous to the final cardiac breakdown, a marked hypertension dependent on the enlarged heart, when they may have taken no violent exercise for years. There may be no sclerosis and no toxemia. The cardiac hypertrophy is merely the result of a physiologic response to the repeated temporary increase of tension from excessive physical exercise in earlier years, but sustains a chronic hypertension.

Ordinary laborers are subject to this form of hypertension. In these cases the engine has become too powerful for the rest of the machinery, which is gradually wrecked and destroyed, merely by the constant throbbing and pounding. Very large individuals are more prone to cardiac hypertrophy than the average, as the work to be accomplished is greater. Other similar cases are where the heart hypertrophies from some other temporary need for increased force, such, for instance, as a vasoconstrictor or cardiac stimulating toxin acting for sufficient period to produce hypertrophy and then being withdrawn ceases *per se* to be an immediate causal factor. From our knowledge of the temporary action of the drug, and without sufficiently prolonged clinical observation to justify a positive statement, we may suppose that prolonged use of digitalis, with its subsequent withdrawal, might present such a condition. Overindulgence in tobacco, apparently, induces cardiac hypertrophy. In the monograph by Dr. Briggs and myself, in a recent volume of The Johns Hopkins Hospital Reports, mention is made of the influence of tobacco in raising blood pressure, and it is there suggested as a causal factor in arteriosclerosis. Janeway confirms this observation. Further observation inclines me to the belief that tobacco does not primarily affect the arterial wall injuriously, but where sclerosis is induced, it is done indirectly through the induction of increased tension. I have found that many young men who smoke to excess uniformly exhibit hypertension ranging from 160 to 180 mm. Hg, and I have lately met with several cases of hypertension and cardiac hypertrophy in older men where the only etiologic factor obtainable was excessive indulgence in tobacco.

Alcohol has no such action. It is not a cardiovascular stimulant, and does not produce hypertension. As a factor in the production of hypertension, alcohol must act either indirectly by causing sclerosis of the arterial wall, as it apparently acts on the liver in cirrhosis, or else through the medium of a toxin produced by some metabolic disorder which the alcohol may have induced. This secondary toxin may either act as a vasoconstrictor, as is probably the case in alcoholic nephritis, or may directly injure the arterial walls. The alcohol itself does not act by inducing hypertension. In the production of cardiovascular disease, independent of a primary nephritis, I believe that the importance of alcohol has been exaggerated and that of tobacco relatively underestimated.

In compensated valvular insufficiencies, accompanied by cardiac hypertrophy, there is chronic hypertension at systole, even though the back-flow may induce a low diastolic pressure.

Certain cases of chronic pulmonary disease, such as emphysema, chronic fibrous changes and asthma, in which more or less obstruction to the pulmonary circulation probably occurs, are associated with high-tension pulse. Sansom is the authority for the suggestion that a chronic consolidation of a lung with high-tension pulse is probably not tuberculosis, at least in an active form, as that disease is constantly accompanied by low tension.

Certain cases of cerebral tumor produce a condition of hypertension in the systemic arteries, in order to prevent anemia of the vital centers.

In still other cases certain toxins induce hypertension by a constricting action on the arteries, either directly or through the vasomotor center; notably those contained in the blood in renal disease, in eclampsia, in diabetes, and in nicotine or lead poisoning.

Gout, syphilis and lead in part, at least, seem to cause hypertension, perhaps rather through the structural changes they produce in the arteries than through any constrictor influence. Typhoid fever causes hypertension, according to Dr. Thayer's[3] observations, apparently in the same way.

To openly avow ignorance of the exact nature of a condition does not necessarily preclude the value of its recognition nor of a tentative analysis of its manifestations. Though we are still ignorant of the exact etiology of primary pernicious anemia, the recognition of its claim to notice as a distinct disease has been productive of much good; and, further, gives a more correct and definite trend to any investigations concerning its etiology, than if it was still confused with other anemic conditions. Though the terms primary, idiopathic and autotoxic have undoubtedly been much abused, abuse should not necessarily prohibit moderate use and until more exact analyses shall permit greater accuracy, these terms will prove of assistance.

Whenever a symptom completely monopolizes the clinical picture and recurs over and over again in just the same way in the absence of any constant discoverable disease, it deserves individual recognition as a distinct clinical entity. In certain definite cases of hypertension no organic disease can be determined on as an etiologic factor, and where present evidently exists as a complication or a result, rather than as a cause of the condition.

Primary hypertension may be defined, then, as an affection in which a persistent increase in arterial tension gives rise to certain symptoms, preceding the development of any discoverable organic disease, unassociated with any constant pathologic lesion, and which,

3. Thayer: Jour. Med. Scien., March, 1904.

finally, produces organic changes, particularly in the heart, blood vessels and kidneys.

ETIOLOGY.

Heredity apparently plays an important part in the production of this affection. Certain families show a marked tendency to the early development of cardiovascular and renal diseases, the organic changes in the majority of cases being antedated by a gradual rise in arterial tension. This tendency is particularly common among the males of such families.

Between the ages of 45 and 60, these men begin to show signs of the wear and tear of life, while many of their compatriots are still in their prime. Advanced grades of arteriosclerosis are not common. The condition is particularly associated with certain forms of gastrointestinal intoxication, this tendency being present in two distinct types; one represented by the large plethoric individual who eats inordinately; the other by the sallow poorly nourished dyspeptic, in whom the catarrhal enteritis and defective elimination induce a condition of chronic toxemia. In both instances the condition is one of autotoxic contraction of the arteries; the former, with normal quality of digestion, poisons himself by the mere excess of digestive and bacterial products above the needs of healthy nutrition; in the latter, faulty digestion and disordered assimilation give favorable opportunity for the absorption of putrefactive products instead of the normal products of digestion.

Constipation in itself is not necessarily accompanied by toxemia, and, therefore, does not necessarily induce hypertension. Purgation as a means of elimination is a most valuable adjunct to the treatment of many toxemias, but the mere fact that the bowels do not move every day by no means indicates toxemia. Indeed, in many cases of extreme constipation, where the bowels are not emptied more than once in a week or so, there is no subjective symptoms of poisoning and no hypertension. The very sluggishness of the intestinal movements indicates a paucity of the decomposition products which normally stimulate peristalsis.[4] So far from the failure to defecate in these cases being a cause of injury, it is merely an indication of unusual freedom from a possible source of intoxication. Such instances are best illustrated among the poorer classes, where all the nourishing elements in the insufficient food supply are eagerly seized on by the healthy digestive apparatus and quickly absorbed, so that nothing is left by the time the colon is reached to afford media for the production of the bacterial products which normally induce expulsion. Of course, where digestive disturbances or excess in eating encourage undue bacterial decomposition, the constipation becomes a very active factor in increasing the amount of toxins absorbed.

Some people can regularly have intervals of a week or more without a stool and keep in excellent health; others suffer headache, giddiness and nausea, and exhibit marked increase in pulse tension if a single morning evacuation is omitted. Large frequent stools, which are a necessity for the wealthy gourmand or dyspeptic, would be for the healthy active poor an unnecessary extravagance.

Mental strain undoubtedly plays an important part in the development of hypertension. Mosso has shown that emotion causes a spasmodic contraction of the arterioles. Continued care, worry and emotion induce chronic hypertension, and this influence is especially shown by the prevalence of the disease in those occupations to which they are incident. Huchard[5] says: "Strong and repeated emotions can induce cardiac affections by their incessant action on the peripheral circulation; this is one of the reasons why, according to my observations, arteriosclerosis is so frequent in members of our profession. It is the disease of medical practitioners, because their profession is associated with emotional and nervous overstrain; for the same reasons, it is a disease of politicians and financiers."

Here, again, as so often occurs in the literature of vascular disease, arteriosclerosis and hypertension are apparently used either synonymously or with a very indistinct idea of their relation to each other.

Sedentary habits prevent elimination, and so add materially to the toxic and hypertensive tendency. This is especially true of the eliminative functions of the skin and the intestines. The relation of renal function and changes in tension within physiologic limits is so obscure that it can not be opened here. The subject has been carefully studied by Dr. Erlanger of the Johns Hopkins Hospital, and his results will be published later in the *Johns Hopkins Bulletin*.

Furthermore, the complicating factors of any of the other causes of hypertension, previously stated, will, of course, augment the primary condition, and both hasten and direct its termination.

PATHOLOGY.

I have begun further studies of the pathology of this condition, which will be detailed later. The most frequent and striking findings are cardiac hypertrophy and dilatation, hyperplasia of the media in the systemic arteries, which may be markedly tortuous; thinning of the cerebral arteries; hypertrophy and engorgement of the kidney, the so-called arteriosclerotic kidney, or in later cases atrophic cirrhosis of the kidney, small granular kidney.

SYMPTOMS.

Symptoms may be divided into two stages—before and after the onset of complications—which give definite signs in one or in another organ. In those cases, especially referable to autointoxication of digestive origin, the first symptoms may be merely lassitude, constipation, headache, throbbing of the temples on exertion, and the patient may look run down, and a tonic may seem to be indicated. These patients are usually young adult males, perhaps of neurotic tendency, and often excessive users of tobacco. No signs of organic disease can be made out. The pressure will average from 40 to 60 mm. Hg above normal. Frequently the first symptoms are complained of between 40 and 50 years of age. There may be slight mental changes and noticeable irritability of temper, and a tendency to become low-spirited and morose. The sleep is uneasy, and may be occasionally interrupted shortly after retiring, in a struggle for breath or with merely a distressed feeling around the heart. Heavy suppers and high living in general is not borne so well, and may be associated with dyspeptic symptoms. Exertion more readily induces shortness of breath.

Preliminary symptoms may be absent or neglected until an attack of vertigo, acute bronchorrhea, cardiac dilatation or apoplexy demand medical treatment, or end the case suddenly. Perhaps the applicant seeks

4. Strassburger: Ztschft. f. klin. Med., 1902, vol. xlvi, p. 413.

5. Huchard: Maladies du Coeur, p. 78.

his physician in surprise at being declined by some life-insurance company because of a trace of albumin in his urine. These cases average a pressure of 160 to 200 mm. Hg (9 cm. armpiece), and most frequently are in men in active business or professional life.

PHYSICAL EXAMINATION.

The one essential finding is systolic hypertension in the systemic arteries. This varies from an increase of 20 to 100 per cent. above normal. The arteries often pulsate visibly, tend to become more and more tortuous with the duration of the condition, and slow thickening. Evidence of sclerosis or of degenerated changes in the wall with hardening and ring formation is not present except inconstantly and in the later stages. Definite distinction must be made between the hypertrophied tortuous artery, so characteristic of chronic hypertension, and the hard, ringed quill or pipe-stem artery, often nearly straight, of arteriosclerosis, where an increase in tension is by no means essential. The frequent error of taking the two conditions to be evidences of the same process is to be deprecated.

After the blood current has been shut off by proximal compression, the artery of hypertension is found to be distinctly thickened, and makes a more palpable cord to roll between the finger and the bone, but the walls collapse easily, show no irregularities, and give the impression of softness in spite of the thickening. The sclerotic artery resists pressure, is irregular or ringed, and feels distinctly hard.

Professor Sansom considers when the pulse tracing shows an ample dicrotic wave, indicating on the part of the vessel lack of ability to accommodate caliber to its contents, that degenerative changes are present, rather than true muscular hypertrophy. My observations with the sphygmogram tend to confirm this deduction. Further, Dr. Oliver considers the loss of normal variation in caliber in response to changes in physiologic condition an important aid in distinguishing sclerosis. A decided loss of ability on the part of the artery to respond to vasodilator drugs is another condition which I have found associated with sclerosis.

Cardiac hypertrophy, which is always present as a physiologic response to increased peripheral resistance, in the earlier stages, and in fleshy individuals, particularly in women with pendulous breasts, may be difficult to determine definitely. Chronic hypertension is a surer indication of hypertrophy than the outline of percussion dullness.

The urine is variable. In the earlier stages with marked intoxication the urine may be of high specific gravity, and form a heavy sediment of urates. Later, with the more pronounced cardiac hypertrophy and higher tension, the blood supply to the kidney becomes excessive and the urine becomes of lower specific gravity, and may at times of extra strain show a trace of albumin. A systemic pressure in the neighborhood of 200 mm. Hg, obtained with a 9 cm. band, seems to indicate approximately the limit of renal resistance to albuminous exudation. The kidney is now enlarged and reddened, the so-called arteriosclerotic kidney, evidently not a true primary sclerosis. Later, sclerosis may develop, as in all chronic congestions, and the kidney may pass on to the stage of cirrhosis or small granular kidney.

Such a condition could not properly be called Bright's disease or nephritis. To quote from Mahommed,[6] the term is too general for scientific use, for, as applied by some, it has become synonymous with albuminuria. My observations tend to confirm his views that intermittent or chronic albuminuria does not necessarily mean nephritis, though his tendency to describe all urinary changes, usually attributed to nephritis as the result of hypertension, is extreme. But the element of truth in his deduction should not lose its value on account of the radical extent to which it is applied.

His crude methods of measuring tension with the sphygmogram led him to this significant conclusion which, on account of the coincidence with the results of my own work, I take the liberty of quoting at some length: "First, previous to the commencement of any kidney change or appearance of albumin in the urine, the first condition observable is high tension in the arterial systems, due to the presence of noxious material in the blood. If this condition be allowed to continue, albumin is subsequently found, and if still unchecked or uncontrollable, Bright's disease in one of its forms appears.

"I believe that the chronic condition of increased blood supply produces increased growth of the interlobular connective tissue, and if still continued, this must result in contraction, and induration, atrophy of the tubules from constant pressure, would now ensue. This sequence of kidney changes agrees with that described by most observers. In confirmation of this view of the commencement of these changes, I have frequently observed a condition of high tension in the pulse in cases that have subsequently developed albuminuria and symptoms of cirrhosis of the kidney."

He asks, "Can the term 'inflammatory' be fairly applied to this disease?"

Anemia is not a prominent symptom. The cases, in fact, frequently are examples of the Bardolphian fascies. Where there is pallor the anemia is apparent rather than real, caused by the peripheral constriction. Edema is a symptom of the complications, not of hypertension.

COMPLICATIONS.

Complications are determined by the organ that is least enduring of the strain. Cardiac dilatation and myocarditis, albuminuria, arteriosclerosis, apoplexy and bronchorrhea occur about as in order named. The compensatory cardiac hypertrophy can correct the evil for a certain length of time, but sooner or later must fail to endure the ever-increasing load.

Dana says: "It has been shown in many cases before the onset of cerebral hemorrhages, there has been for some time a gradual rise in general blood pressure which has thrown an undue weight on the work of cerebral blood vessels." Finally the limit is reached, and a vessel ruptures.

In the two decades in which hypertension usually reaches its maximum—from 45 to 65—43 per cent. of all deaths from apoplexy occur.

DIAGNOSIS.

A diagnosis of chronic primary hypertension is dependent on the demonstration of a chronic increased arterial pressure and the exclusion of organic disease, or evident toxemia, which could account for it. As accurate estimations of pulse tension come into more general use, the condition will more frequently be recognized during the early stages, and before some organic manifestation attracts notice to the hypertension which will then, in most cases, probably be regarded as a symp-

6. Mahomed: Med. Chir. Trans., 1874, p. 197.

tom rather than the underlying causative factor. After several organs show marked changes the sequence of events becomes obscure.

I have lately seen a case of vertigo in a financier of 60 treated by active stimulating drugs, and who died the same night of apoplexy. A course of nitrite based on an estimation of hypertension would almost surely have averted the attack. Also, I have seen a case of repeated attacks of acute pulmonary edema with intermittent albuminuria, variously diagnosed bronchitis, congestive chill, arteriosclerosis, etc., in which the pressure averaged 200 mm. Hg, and where eliminative and depressant treatment has so far prevented a further attack; also another case of so-called "weak heart," in which there was a blood pressure of 190 mm. Hg, with headache, nocturnal dyspnea, and suffocating feeling of impending death around the heart. No albuminuria nor casts nor arteriosclerosis. By reducing the tension to 160 mm., the symptoms were relieved. Except in an infectious disease, no judgment should be formed of a patient over 40 without a knowledge of the blood pressure, and the routine estimation of this symptom in every case will permit a more frequent recognition of the first stages of the primary form of hypertension.

TREATMENT.

Treatment may be divided into two parts:

First.—Early treatment where a correction of the tension usually may be accomplished by dietary and hygienic measures.

Second.—Late treatment where the administration of specific drugs supplementing the general treatment is necessary in order to overcome the condition.

The first division needs no comment here, except notice of the fact that a meat diet seems to have a very strong and direct influence on initiating and continuing a rise in arterial tension.

For the more persistent cases, where the cause can not be eradicated or where organic changes prevent restitution, we must have recourse to drugs and, fortunately, we have almost a specific for this condition.

To quinin for malaria, mercury for syphilis, iron for anemia, and adrenalin for vasomotor paralysis, we must add the nitrites for hypertension.

Drug treatment, however, should not be resorted to, except when more natural means fail, or where immediate relief is necessary (here prompt venesection is invaluable), and should be discontinued as soon as possible. In certain acute affections associated with hypertension, such as some forms of vertigo, angina pectoris, acute cardiac dilatation, tic douloureux and asthma, amyl nitrite may be inhaled quickly, preparatory to more permanent relief. The action of this drug is very transitory and ceases almost immediately with the termination of inhalation. Furthermore, the amount can be very indefinitely regulated, and the effect is proportionately uncertain. In some cases of hypertension I could discover little or no lowering of the blood pressure. In others I have observed a drop of 30 to 40 mm. Hg lasting about one to three minutes.

Nitroglycerin is likewise rather uncertain in its action and, though more constant and persistent than amyl nitrite, does not seem to deserve the prominent place it occupies in the therapeutics of various forms of hypertension. I have obtained a drop in blood pressure of 100 mm. Hg in less than ten minutes following 1/50 gr. of nitroglycerin, but there was a return to the former level of 200 mm. Hg in about an hour. In another case, after the same dose, the rhythm and tension became very irregular, and, while the rate rose to 110 from 60, there was no definite nor constant lowering of tension. There was some twitching of fingers noticed during the effect of the drug. This case and several similar ones incline me to believe that nitroglycerin must be subject to some chemical changes which may alter and impair its properties. In some cases the transitory depression only lasted 15 or 20 minutes after a hypodermic of gr. 1/100 to 1/50 nitroglycerin, and never much over an hour. The pulse is usually increased in frequency and sometimes alarmingly so. In several cases taking a 1/100 gr. triturate every three or four hours week in and week out I could find no definite effect from a single dose, nor from the aggregate doses. There seemed no instance in which the patient would not have been benefited by substituting sodium nitrite for nitroglycerin.

Sodium nitrite may lower the blood pressure for from two to three hours, occasionally as long as four. This is unaccompanied by more than a very slight increase in pulse rate. There may be a feeling of flushing and throbbing, as with other vasodilators. The reaction from 1 or 2 grains averages a fall of from 25 to 50 mm. Hg coming on rapidly in from 5 to 10 minutes on an empty stomach, and more slowly when taken after eating. Where a uniform permanent effect is desired, after meals seems the best time for administration, as the effect is not so abrupt and is more lasting.

I have obtained a fall in blood pressure from aconite, but my observations with this drug are so limited that I can not confirm Dr. Thompson's favorable report of its use as a vasodilator in nephritis.

CONCLUSIONS.

Chronic hypertension may be divided into 4 classes, according to etiology: (a) arteriosclerotic; (b) cardiac, pulmonary and cerebral compensatory; (c) toxic; (d) primary.

The primary form of hypertension deserves recognition as a distinct disease.

Early recognition of the tendency toward a progressive increase in pulse tension should prevent or delay the development of certain forms of cardiovascular and renal disease.

In correcting hypertension sodium nitrite has many advantages over nitroglycerin.

DISCUSSION.

DR. NOBLE P. BARNES, Washington, D. C., stated that vascular dilatation may be influenced by mental, physical or mechanical means. Systematic physical exercise is possibly the best method of accomplishing vascular dilatation, especially in mental and desk workers, with atonic hearts and contracted peripheral vessels. Here an hour of gymnasium work, followed by the gradually cooling shower bath every second day, will accomplish great good. Mechanical dilatation of the peripheral vessels suggests itself in the incipiency of pneumonia, convulsions of infants and conditions of shock. Counter-irritants, as the hot mustard bath or foot bath, are of recognized value in equalizing the circulation. Arteriosclerosis puts in its appearance about the time the thyroid gland begins to atrophy. As this gland has vasodilating properties, the administration of the extract might be useful in these cases. Amyl nitrite is a prompt, efficient and convenient drug, indicated in angina pectoris, epilepsy and similar emergencies. Nitroglycerin acts less promptly, but has more lasting effect; while sodium nitrite and erythrol nitrate are best for continued use, their action being less powerful and more permanent. Drugs acting centrally to produce vasodilatation most likely do so by depressing the vasoconstrictor centers.

DR. C. E. DE M. SAJOUS, Philadelphia, referred to the influence of the pituitary body on arterial hypertension. He said that Professor Cyon of Geneva, and more recently Masay, by stimulating this organ produced all the manifestations of increase of arterial pressure; in other words, they obtained an enormous rise of arterial pressure. The merest touch sufficed to raise the pressure, while the current brought it to a very high level. In the course of another experiment performed while studying the causes of cerebral pressure, Cyon observed that all the reflex phenomena obtained by stimulating the nasal mucous membrane, such as sneezing, coughing and increase in secretion, could not be obtained when the pituitary body had been removed.

DR. WILLIAM F. WAUGH, Chicago, objected to the use of the nitrites as vasodilators for chronic cases. He said that the nitrites are well suited to meet a temporary condition and produce a sudden rise, but from none of them can be obtained a continuous effect, not even from sodium nitrite. Their effect will pass off in a half-hour at most. For conditions in which a continued effect is required veratrin is useful. Its effects may be kept up for months. Another advantage of this drug is that it presents no possibility of accumulation, as it opens all the channels of elimination.

DR. H. C. WOOD, JR., Philadelphia, said that it has been experimentally shown that a greater amount of blood goes to the arms and legs when the mind is concentrated on them. He took exception to the statement of Dr. Cook that there is such a thing as "idiopathic" high tension, the cases called idiopathic being simply those whose cause we fail to determine. When the nitrites are employed in arterial hypertension it is for their temporary effect; their greatest use is where there is immediate danger from the vascular constriction, as in threatened apoplexy. He agreed with Dr. Cook that sodium nitrate is the best. Tetra-nitrate and potassium nitrate have been stated to be more permanent than the nitrites in their effects. Sodium iodid and potassium iodid may act, by bringing about a change in the arterial nutrition and may be valuable in prolonged administration. Diet is one of the best therapeutic measures and has an important place among other methods of treating arterial hypertension.

DR. WM. C. ROBINSON, New York, emphasized the value of veratrum viride as a permanent vasodilator and said that by this means the blood vessels can be kept dilated for weeks at a time. It has been used in nephritis and other conditions of high tension with good results. Dr. Lauder Brunton especially recommends the crude potassium nitrate, which has been found to contain a small proportion of potassium nitrite. Perhaps the good effects are due to this fact.

DR. JOSEPH CLEMENTS, Nutley, N. J., stated that he has a valvular lesion of the heart, and after walking several blocks he is liable to feel distress and pain in the pericardium and in the region of the liver. He always has with him some tablets of glonoin. One of these tablets will, in two minutes, begin to ease the distress. The hypertension is quickly relieved, and he is able to go on walking, or with whatever he may have been doing, which caused the tension of the blood vessels and the distress and pain. Even standing for any length of time to speak will sometimes induce this condition, which is usually relieved on taking a tablet or two.

W. W. TOMPKINS, Charleston, W. Va., recently had a patient who took a pearl of amyl nitrite and crushed it in his handkerchief and inhaled it. He immediately fell as if struck on his head and had such intense vertigo that he had to go to bed and remain there for ten days. Every time he lifted his head he had vertigo and if he tried to stand he fell to the floor. This may be a case of idiosyncrasy, as Dr. Tompkins never heard of another case in which amyl nitrite acted in this way. The man did not use the drug because he needed it, but it was ordered for another member of the family and he took it on his own account to see what effect it would have.

DR. O. T. OSBORNE, New Haven, Conn., agreed with Dr. Cook that the nitrites do good in these cases of hypertension by their prompt action in dilating the blood vessels and reducing tension. The iodids belong to the alterative treatment. The thyroid gland gives out a vasodilator substance and the adrenal glands give out a vasoconstrictor substance; these exercise an important influence on the circulation. The thyroid gives out an iodin substance, and we can understand how the iodin may do good when administered to these cases by stimulating the thyroid to extra secretion, especially at the age when this gland begins to atrophy. Dr. Sajous asked if the iodin stimulates the thyroid gland.

Dr. Osborne, in reply, said that all the iodids stimulate the thyroid of extra secretion, as can be demonstrated in Graves' disease.

DR. H. W. COOK stated that, owing to want of time, he was obliged to omit the hygienic part of the treatment in reading his paper, and perhaps this has given rise to a false impression of the effects of treatment. In his experimental work he has obtained a result of a fall of 120 milligrams, lasting for two hours, from a dose of sodium nitrite. He thinks that in these cases of chronic arterial hypertension, what is needed is decreased arterial resistance rather than decreased work of the heart.

THE THERAPEUTIC VALUE OF MASSAGE IN ACUTE DISEASES.*

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The question of nutrition underlies the activity of every organ and tissue of the body. In general, we may say that nutrition is dependent on circulation, and that this is a double process, or rather a single nutrient current that becomes divided into two in the capillary regions. At the point of division it is not only distributed by two entirely distinct sets of tubes, but the rate of flow is widely different, as is the quality of the contained nutrient stream. The blood is ordinarily looked on as the great nutrient tissue of the body. It has its well-defined cells which carry on individual functions of widely different character, according to the nature of the corpuscle, but the intervening plasma, or stroma substance, lying between these cells, is the carrier of most of the nutrition that the various structures of the body need, as it is also the remover of their waste products.

The speed of the blood flow is such that material gathered from it must be withdrawn by chemical activity rather than by the physical processes of diffusion and osmosis; but as the removal of waste requires rapidity of flow, it becomes desirable that the purveyor function should be to some extent separate from the eliminative function. For this purpose the blood vessels, at the areas where the blood flow is slowest, are so constructed that they permit the blood plasma to flow through into the intercellular spaces of the various organs, and these intercellular spaces are more or less filled with this leakage material that thus bathes the cells with a nutrient fluid which moves comparatively slowly and which permits free interchange with the protoplasm of the cell. In this way nutrition is maintained.

Near the periphery of the organ or any of its segments, the intercellular spaces take the form of well-defined ducts, and these are called lymph vessels, being supplied with valves at frequent intervals that permit the movement of their contained fluid in only one direction, which is toward the periphery of the organ. When we pass beyond the limits of any individual

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structure, we find that the lymph ducts in general are continued toward the center of the body, while along the course of the lymph vessels, or lymphatics as they are called, are found frequent glands into which the vessels pour their contents and from which fewer lymphatics lead on to the center of the body. In some regions, as in the neck, these glands are extremely frequent, so that the lymph is strained before it has passed any great distance from its point of origin. In other regions, like the arm and leg, considerable distance may be traversed before the lymph is poured into a gland, and it is interesting and important to note here that in general these lymph glands are located in the region of joints, and usually on the flexor sides of the joints, so that any movement of the limbs, neck, etc., tends to temporarily compress the glands and also to press on the lymphatics so as to drive the lymph along toward the center of the body. This may be called a natural massage of the lymphatic area, and its importance will be noticed when we compare the edematous condition of a limb that is kept perfectly free from movement with the fine circulation of a limb that is adequately exercised through the whole range of its possible motion.

This brings us to speak of the causes of the lymph flow, which are, in brief, the residual or leakage pressure which is carried through from the blood, and, more important under ordinary conditions of life, mechanical pressure. Under this latter head we must classify not only the pressure created by change in form of a part by muscular contraction, but muscular pressures produced in various regions by different physical acts, as in walking, sitting, carrying burdens, etc., and also the minus pressure produced in the thorax during inspiration.

In conditions of extreme inactivity, as when we are sleeping, the lymph flow is extremely slow, because every element of propulsion is reduced in quality, the aspirations of the thorax being more constant than any of the other forces. During violent physical exercise the lymphatic flow is greatly accelerated, because every element of propulsion is pushed toward its maximum, both the heart and respiratory organs responding in direct proportion to the amount of muscular work done.

The difference in lymphatic pressure and speed of flow has been beautifully illustrated by a case that has come under my notice that is worth recording.

Patient.—A young man, aged 20, came to me with a peculiar discharge from the upper part of the thigh over an area of about 7 cm. in diameter, lying immediately below Poupart's ligament on the left side.

History.—At about 8 years of age, he had suffered from a bubonocele, the cause of which was not absolutely certain, although he thinks it was due to a blow in that region. The inflammation at this time must have been excessive, and while medical care was given the patient surgical interference was not used until the cyst burst and evacuation took place by natural methods. The disintegration of tissue must have been extensive, as indicated by the size of the cicatricial relic of the inflammation. The abscess had not invaded the abdominal integument, and the line of Poupart's ligament removed a segment of what would otherwise have been a fairly circular scar.

Examination.—This young man was apparently in perfect general physical health, and had been playing football the afternoon before I saw him in the evening. He had a towel around his thigh, which was wet, and I found it was saturated with lymph that was exuding from the cicatricial area in perhaps a dozen places, and there were about as many more spots that looked like small blisters, from the size of the head of an ordinary pin up to a bulla 3 mm. in diameter. He told me that all these openings that were oozing first appeared as blisters, and that if I were to open one of those blisters it would leak a fluid such as the others were discharging. I found this to be the case, and that the discharge of one of these openings would amount to a drop in about from thirty to forty seconds, some of them oozing more rapidly than others. Any one could be easily isolated by lightly pressing a tube over it, and the discharge be thus collected. On microscopic and chemical examination, this fluid was found to be pure lymph, and the case afforded an unusual opportunity to observe the influence of active and passive exercise on lymph flow. This case had repeatedly gone through this leakage process, and the patient was in no way alarmed at his condition. He knew that if he remained quiet for a period of two or three days the scar would heal over and would remain intact until he indulged in fairly vigorous exercise again. He was of active temperament, and for a period of three years I had an opportunity to observe him under normal conditions, with the lymphatic flow just beginning, as well as at its height, and while subsiding.

A study of this case under the influence of various positions and forms of activity showed that a high elevation of the leg soon caused a marked diminution in the amount of flow, and this was the quickest method of relief that would permit the healing over of the opening of the cicatricial tissue. It was also demonstrated that a massage of the muscles of the leg produced an increased flow of lymph that was continued for some little time, and that appeared to be due to two causes: First, an immediate exit of lymph due to pressure on the lymphatic vessels and lymph spaces; and, second, a prolonged secondary flow apparently due to hyperemia of the structures that were massaged. The importance of this case in demonstrating the value of appropriate massage in stimulating the flow of lymph and blood is greater than the indirect evidence produced in the diminution in the size of parts and the reduction of edematous conditions, for the time relations existing between the movements and the flow could be readily recorded.

ACTION OF MASSAGE ON THE NERVOUS SYSTEM.

A second value of massage that I wish to mention is with reference to its action on the nervous system. Here we have a complex matter that is not completely understood, but that has certain salient points so definite in character that we may properly discuss them as scientific truths.

The first feature of nerve activity that is started by massage is a sensory impression that accomplishes several things. First, the attention of the patient is diverted from the seat of pain or of discomfort, with such psychic results as directly relieve the discomfort to a greater or less degree, according to the mental poise of the patient and the ability of the masseur to establish satisfactory sensory impressions. This relief of mental attention is highly favorable to reparative action. It was demonstrated several years ago that the centering of the attention on any given part of the body, like the hand, was capable of elevating its temperature to a very considerable extent, and it has been repeatedly demonstrated that the unfavorable mental anxiety regarding the pain of a part results in increased hyperemia of the part, with corresponding increase in pain from the stretching of sensory nerve fibers throughout the area involved. The converse of this proposition must be true, that if the blood be diverted to remote parts through nervous intervention the congested area will be appreciably relieved.

Second. The vasomotor nerves react to surface impressions, as well as to muscular movements, and the blood may be diverted to remote areas by such movements as will cause a reflex dilatation of the blood vessels in these parts. It should be noted in this connection that a vasodilator action over considerable areas will tend to diminish the total blood pressure, and for this reason massage has been used with such great success in cases of valvular lesions of the heart.

Third. The deep reflexes that control normal balance between parts are kept in action so that an approximation to general health is maintained while the body is undergoing local disease—for in a sense nearly all acute diseases are local—and the healthful functioning of one part assists in the normal activity of all.

When we consider how greatly the blood supply to any given part is dependent on nerve control of the vessels leading to that part, we shall appreciate at once how an appropriate appeal to nerve centers may so far modify circulation as to give relief from pain and promote healthful repair. By appropriate massage the blood supply may be distributed fairly evenly throughout the body, and all organs remain in a fair condition for functional activity, even when acute disease is strongly tending to dam it up in some definite locality.

MASSAGE IN PROLONGED ACUTE DISEASES.

Another important result of massage in prolonged acute disease is the improved nutrition that the system has through the crowding into the nutrient circuit of the material that is naturally provided by the retrograde metamorphosis of cells throughout the body. We are taught in our elementary physiology that in periods of starvation a sheep becomes an example of carnivorous feeding because its own cells give up the material that afford nourishment to such parts as must maintain a fairly regular degree of activity, such as the heart, respiratory muscles, etc.

When the muscles are called into action by volitional movements they consume in a catabolic way the material that might be given off by diffusion and osmosis to the lymph and blood vessels, and so be carried around to nourish the tissues whose activity must be fairly regular and constant. In this way life may be prolonged when the natural nutrient canal is unable to retain or absorb and appropriate the proper nutriment for the body. This phase of massage is more important than has usually been conceded, for it gives a possibility of rest to organs that are unable to functionate and carries the system along until the natural methods are restored. This process renders available much of the fatty tissue that is stored in the skin and in the abdominal cavity, and which, if left inactive and with poor blood circulation, could never be recalled as fuel, although its primary function is that of stored food.

With the above view of the physiologic grounds for advocating massage, the question will naturally arise as to what may be the value of the art in acute diseases. Already it has won a place for itself in the treatment of chronic cases where appropriate stimulation is needed if repair is to be encouraged and facilitated. There is a certain line of cases, like the zymotic diseases, where the benefits of massage may seem more or less problematical, and as this is a field which has not been occupied by any except the more expert and careful masseurs, we must appeal to our physiology in support of this means as a rational help in the treatment of these cases, especially at certain stages of the disease. In such a condition as pneumonia or typhoid fever, where the heart action becomes a matter of solicitude, there would be absolutely no contraindication to the use of massage, if properly applied, to diminish the burden carried by the heart and thus improve the patient's condition and ability to endure the other hardships of the disease.

In typhoid fever the failure in heat elimination can be partially remedied by appropriate manipulation, but I believe that the most favorable results will be produced on the circulation and nutrition. As it is a disease that locally affects the nutrient canal and renders it unfit for its work of digestion and absorption by reason of the high temperature and inflammation of the mucous membrane and intestinal glands, it is desirable, therefore, not to require more work of this particular organ than is absolutely necessary. So we may resort to the utilization of stored food that can be brought into the circulation from storage cells as well as from the muscles themselves. This will maintain the vitality of the patient through prolonged periods without the possibility of fermentation and decomposition changes going on inside of the intestine where their products will prove specially irritating to surfaces that are already tending to break down or that have broken down and present ulcers of rodent type. We know through experience with wounds on the external surface of the body how quickly their character changes when decomposition products are brought in contact with them, and we must believe that the same changes occur in parts that are not readily open to inspection. We have proved that these products produce increased inflammation, as shown by the elevation of temperature, tympanites and the poisoning of the central nervous system that formerly so frequently resulted in active delirium, but more recently rarely reaches this condition of toxemia.

EFFECT OF EXERCISE ON THE BLOOD.

An examination into the modifications of the blood that are caused by exercise has been made by Drs. Mitchell and Babbitt of Philadelphia, and Dr. McCurdy of Springfield. Their investigations seem to show that the corpuscular element of the blood is increased by both active and passive exercise, and while this is probably due to what may be considered a more even distribution of the corpuscles throughout the vascular system, it would appear that in any form of acute diseases such an even distribution is greatly to be desired from a physiologic standpoint. In the zymotic diseases the increase of leucocytes is highly desirable, and any process that does not produce injurious effects in other respects and that will cause an increased leucocytosis, would naturally be employed.

MASSAGE IN PARALYSIS.

My principal plea for the employment of massage is for the effect which it has on the nerve centers and as an assistant to the heart by relieving it of a considerable part of its work. Where disease is long continued another condition should not be overlooked, namely, where muscular tissue is likely to undergo atrophy and cause deformity and subsequent inefficiency of the part. Such cases are constantly recurring in the practice of every physician.

I remember vividly the first case of Bell's paralysis of the facial nerve that ever came under my professional care. The patient was a young man who was studying for the ministry, and the facial condition

was such as to cause great alarm and doubt as to the possible ability of the patient to carry out his plans for his life work. The paralysis was more than ordinarily severe, and yet by proper massage the tissues were not wasted nor seriously atrophied, and this man now holds a very important charge as pastor of a church in New England.

Another case that I saw afterward had not been treated for five months, and while the patient was a young man with everything favorable to repair he was unable to close his eyes or move the superficial muscles of the face, while the inability to eat with comfort and properly masticate food had led to a general condition of asthenia that was pitiable. This patient was put under massage treatment, but the tissues never recovered their normal action and form.

We have all seen many cases of muscular atrophy resulting from scarlatina, diphtheria and similar diseases. I am confident that with proper care such cases need not be left as a burden to themselves and society, but with proper intervention to prevent wasting and to improve the nutrition and innervation the great majority of cases would make a good recovery.

MASSAGE IN ACUTE INFLAMMATIONS.

In acute inflammations along the spinal tract much may be done to relieve the severity of the congestion by massage, and the assistance that may be given to Nature in establishing neuromuscular activity after a more or less severe disintegration of nerve tracts and centers is undoubtedly very great. In such acute diseases as rheumatism, the pain and congestion are greatly relieved by appropriate massage, and undoubtedly the elimination of waste matters can be greatly facilitated, for it has been demonstrated that not only will the circulation through a given part be greatly assisted, but the functional activity of the glands may be decidedly increased, as has been done in the massage of the kidneys. The sweat glands may be powerfully stimulated, and it is not uncommon to find the skin start a profuse perspiration after a few minutes of appropriate manipulation.

An important value of massage in the care of acute diseases lies in the great relief that the patient experiences from the discomfort that is due to the confinement of the disease. This is especially true of young and middle-aged people who are accustomed to a more or less active life. When disease suddenly stops muscular activity there is a tendency to nervous restlessness and actual pain due to the poor circulation through the muscles and their inability to perform their normal functions. The distaste for confinement in such cases often impels them to keep about when the physician advises a recumbent position and quiescence. By appropriate deep massage all this muscular discomfort is relieved, the circulation through the parts is established, and every condition for repair is improved, until it would almost seem that no element in the nursing of such a patient could be of greater importance than such manipulation.

At present the indication is met in the large majority of cases by superficial skin friction and the application of alcohol; and while this relieves the edema of the skin and subcutaneous areolar tissue, it only superficially accomplishes what is desired, and is to that extent inefficient.

MASSAGE IN HYPEREMIA OF MEMBRANES.

The same thing can be accomplished in diseases that is accomplished in traumatic injuries, although the ocular evidence may not be so well marked. It has always been my practice in treating fractures, dislocations, etc., to relieve edema by appropriate stimulation of the lymph vessels by massage, and I have never yet seen a case that was not greatly relieved from pain, and where the developing turgescence was not checked by this measure. It is fair and rational to assume that the inflammation excited by pain in any part of the body can be checked to a considerable extent by similar processes. If the appropriate massage of the knee joint can effectually promote the absorption of exudate, may it not equally be expected that appropriate manipulation will promote the absorption of an intrapleural effusion? Or, if the effusion is due to a prolonged hyperemia of the pleural membrane, is it not barely possible that appropriate attention given to the circulation of the blood and lymph in the thoracic wall may prevent effusion?

If any person doubts the derivative influence of massage on membranes that are untouched by the process, I ask any such person to experiment on himself the next time he has a severe coryza by vigorous massage of the skin around the base and over the bridge of the nose. The balance between what may be considered normal circulation in a part and hyperemia is so delicate that very slight nerve stimulation, if properly applied, may turn the system in one direction or the other.

MASSAGE IN NEURALGIAS.

In neuralgias the relief by appropriate manipulation is often very marked, and apparently the nutrition of the affected nerve trunk is so influenced that the normal balance is soon secured, and it is found that the pressure along the nerve trunks, to a certain extent, corresponds to a stretching that was long ago found to be an efficient method of treating persistent neuralgias. In sciatica the new method of nerve stretching has been found to be quite as efficient as the surgical method that has been to some extent in vogue. I may say in passing that this new method of stretching consists in flexing the thigh on the trunk as far as convenient, then extending the leg on the thigh so far as can be borne by the patient, and at the same time flexing the foot on the leg as a final part of the movement. This makes the course of the sciatic nerve as long as it can be made in any movement of the body, and where the nerve is extremely sensitive must be done under an anesthetic if carried to its complete extent, which is not always necessary or desirable. I think I am correct in saying that this method is essentially the only one used in the treatment of sciaticas among Scandinavian peoples, and is followed to a considerable extent in France and Germany.

Of course, the diseases mentioned are only illustrations of the general application of this great therapeutic means which has been so long neglected by our profession in this country.

TRAINING NECESSARY FOR THE APPLICATION OF MASSAGE.

It goes without saying that in acute diseases the manipulation should be applied by a person who understands the systemic needs that are to be met. This brings us to a consideration of the training necessary for the application of this method of treatment.

There is a too general feeling among the medical practitioners of the country that massage is allied with the so-called "magnetic" treatment that is practiced

by some of the most arrant humbugs to be found in the country; people who profess to be able to "fill the patient with vitality" from their own superabundant stock, and who feign to be greatly exhausted after half an hour's simple manipulation that would require comparatively little expenditure of energy; or they look on the work as being simply skin friction that has no other function than the soothing of nervous excitement, the control of the attention and the setting up of certain nerve reflexes that are allied to the normal nerve activities excited by contacts in normal exercises. Nothing is to be more regretted than this superficial view of the matter. It leads to every trained nurse being expected to be competent to massage a patient, and every athletic trainer and "rubber" being considered a suitable person to act as masseur in cases that are deemed suitable for this therapeutic method. I have noted illustrations of this, to which I wish to call your attention, as they are not unique but customary.

A surgeon of some prominence, in a city of over 100,000 inhabitants, had been advised to try massage in a case of rheumatism, and he sent for a young man of Hibernian extraction, who had carried water and various athletic paraphernalia for college teams, and had finally become a "rubber" for the football team, to take charge of this case, which he did, with results that were satisfactory to the patient and the physician, except that the next time the patient had an attack of rheumatism that happened to be of fairly acute form, he called in the rubber—I can not call him a masseur—and was treated for several weeks before it was deemed necessary to call in a physician to outline other therapeutic means that were of more immediate consequence than the superficial skin friction, accompanied by more or less oily liniment that had been used.

A second case illustrates the need of training for masseurs. A person suffering from constipation and muscular atony was advised to have massage, and a trained nurse was called in to attend to this phase of the treatment, as she was reputed to have considerable skill and a "magnetic" touch. She manipulated the case in a superficial way with considerable nervous satisfaction to the patient, who insisted that she was improving under the treatment; but her constipation received no benefit whatever, and the manipulation was not sufficiently deep to promote the circulation in the muscular tissues, and she finally became so weak and anemic that she gave up the treatment in despair, and was ordered South for a change of climate. There she fortunately fell into the hands of a physician at a sanitarium, where massage was prescribed, with passive exercise and resistive movements, by a physician who knew what ought to be done and had an attendant who was capable of doing it. The gain was immediate, and the lady returned to her home after two months in greatly improved condition, and her health has remained satisfactory.

I am frequently in communication with sanitariums and hospitals that are inquiring for masseurs to take up the work in their institutions, and I never yet have found but one such place where a masseur was treated as anything better than an ordinary ward master, and they are usually paid about the same wages.

In Sweden, which is the home of medical gymnastics, the government supports a school where three departments of physical training are taught. A course of military gymnastics for the training of the officers for their army and navy; a course in educational gymnastics to train teachers for public-school work; and a course in medical gymnastics for the training of experts in kinesitherapy. In addition to the educational and physical requirements for entrance to the school, there is a course of two years during which the pupil is trained in anatomy, including dissection, physiology, kinesiology, pathology, and practical work in both active and passive exercises in all forms that have been found advantageous from a therapeutic standpoint. During two years these pupils have the advantage of daily work in a clinic, where the new men are taught under the supervision of the senior class and the director, who is a trained physician. In the city of Stockholm there are at least five great clinics where patients are treated by this method, either at public or private expense. The work done in these clinics is co-ordinate with the work of the medical clinic. Cases that happen to go to a medical college are referred to the gymnastic clinic if this therapeutic method seems indicated; and, on the other hand, if a case reported to the gymnastic clinic that was obviously a case for medical treatment, it would be referred to the appropriate place. I happened to be in the Royal Central Gymnastic Institute when a sailor appeared for treatment, who evidently had what is so common in this country, but so rare in Sweden that it was not recognized, namely, a case of tertian malaria, with the characteristic chills and rise of temperature. This case was immediately referred to the medical clinic on my diagnosis; and, on the other hand, cases were daily appearing with cards from the medical clinic to the gymnastic clinic. From observation of work in this line in Stockholm I estimated that from 400 to 500 cases a day were thus treated in more or less public institutions.

Where the medical profession has been trained to an appreciation of scientific exercise, and where the masseur has a training in the proper application of exercise, the two work hand in hand with a most gratifying success. For the physician may direct a certain form of exercise that is indicated for the patient, and be sure that in dosage the masseur will be competent to execute his orders with exactness and a trained appreciation of what is to be done. The assistance given to the practitioner is akin to the assistance a trained surgical nurse gives in preparing for an operation and in the subsequent dressing of the wound—an assistance that makes modern surgery as efficient as it is.

May I suggest that in this country our needs lie in two directions?

First, instruction in the medical schools, that is now almost entirely omitted, that should put the students in possession of the theoretical basis of active and passive exercises, from a physiologic and from a therapeutic standpoint. Also, such practical instruction as would make the physician a competent judge of the quality of the work that should be expected of a masseur. A department for this form of instruction is certainly not unreasonable, for in the better class of medical schools courses in pharmacy are given in order to acquaint the student more thoroughly with the appearance and physical qualities of drugs in the various combinations in which they are ordinarily prescribed.

The second need is in the line of more thorough training of people who wish to practice kinesitherapy. May I suggest that the work done in training for this line of activity should cover at least two, and better three years, the theoretical instruction being parallel

with the instruction of the first two years in the best medical schools, except that the emphasis should be laid on physiology and anatomy, with the time now devoted to chemistry turned toward theoretical and practical demonstrations and practice of the technic of medical gymnastics. I believe they should have some training in materia medica in order that they may understand the physiologic effects of the commonly used drugs; they should also be made familiar with hydrotherapy and other forms of mechanical treatment. The person who completes such a course should be given a degree or professional title, like "Medical Gymnast," and be legally registered for practice, in order that the people at large may know that the practitioner has received a stated form of training for his work and passed definite examinations to establish his ability to practice. This would give the medical practitioner a trained assistant, whose ability might not always be of the highest grade, because even the title of "M.D." conferred by our largest institutions does not always guarantee a competent practitioner; yet on the whole it will raise the standard of work and give an assurance to the people that the person employed is qualified for the work for which he is paid; and the incompetent will be weeded out by the laws of the survival of the fittest as they enter into competition with each other. With the status of the masseur thus determined, the fakirs who now parade under other names but "wear the livery of Heaven to serve the devil in" would be forced into some other line of activity.

In many of our larger cities it is possible to find men and women of rare ability who have been thoroughly trained for the work that they do and whose relations to the medical practitioner are most loyal and satisfactory. I happen to know of such people whose character and attainments are of the very highest order, and whose professional earnestness and honor may well be a model for any of us.

I am not arguing for massage as a panacea, or as the only therapeutic means of value. I simply claim for it such a rational basis for its practice as is furnished by the most thorough knowledge of physiology, and a knowledge of the psychoneural control of many of the pathologic and physiologic processes of our bodies. By this neglect we have put in the hands of illegitimate practitioners an instrument that they have wielded to the advantage of many patients and to the much greater advantage of their own pocket books.

The chemical elements and their combinations are not the only means of awakening or subduing physiologic action. In fact their influence has undoubtedly been overestimated by the practitioners of the past; and while we may take well-deserved credit to ourselves for the beneficent results obtained through drug medication during the hundreds of years in which it has occupied the chief attention of the profession, we must also bear the onus of the extensive drug addiction that is to-day one of the great curses of the human family.

DISCUSSION.

DR. J. W. FOSS, Phoenix, Ariz., said that his experience confirms the statements made by Dr. Seaver. The suggestions made by Dr. Seaver, if adopted and carried out, would assist the practitioner to obtain greater success in the treatment of disease. By the aid of massage results are achieved which can not be obtained by other means.

DR. R. C. NEWTON, Montclair, N. J., considers that Dr. Seaver's paper opens up a large subject, much of which is little understood. Rubbing a patient vigorously during a bath is an essential part of the Brandt treatment of typhoid fever. If the patient is simply put in the bath and left there, the bath might do more harm than good. Owing to its beneficent effect on the circulation, rubbing might be made a part of the treatment in many other fevers besides typhoid. In old, helpless patients much good can be done by rubbing them thoroughly as well as by giving them baths. In cases of so-called sluggish fever with vascular congestion, and in neurasthenia and weak heart, this treatment should be carried out as a matter of routine. There is perhaps no more important phase of therapeutics to-day than massage; and there is no question that the average practitioner needs much enlightenment on its uses, limitations and dangers.

DR. HEINRICH STERN, New York City, in replying to a question, stated that the physiologic effects of massage are of quite a complex nature. They are for the greater part purely mechanical, but also thermal and electro-osmotic. Its total action is exerted on the circulation and the fluids of the deeper-seated tissues, modifying the processes of metabolism. Massage enhances the permeability of various organs, at least re-establishes normal semipermeability in those tissues which have lost their natural characteristics during certain inflammatory processes. By massage the exudate of the serous and synovial membranes, the consequence of acute articular rheumatism, is removed, the membranes resume their normal functions which to the greater extent are only those depending on their normal semipermeability. Every measure tending to re-establish the normal osmotic equilibrium must be considered an osmotherapeutic.

DR. JAY W. SEAVER stated that, owing to lack of time, he had to omit some matter in reading which would have covered the points suggested by Dr. Stern. It has been shown that there is a derivative action produced by these osmotic changes which have been set up. Massage of the kidney causes an increased flow of urine from it, as proved by physiologic experiment. This and other facts show that when we as practitioners neglect valuable means of treatment we leave a fertile field open for cultivation by irregular practitioners who are not slow to occupy it.

REPORT ON THE PROGRESS IN ACTINOTHERAPY DURING THE PAST YEAR.*

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My report will be comparatively brief, since the past year has not been marked by any very important changes or improvements in the actinotherapeutic method. The workers in the field are still few, and for obvious reasons. The apparatus required for its effective employment is, it must be confessed, large and expensive. It is essentially one for institution use; for the cost of installation, the room required, the length of time of treatment, and the restricted classes of patients for which it is useful, do not commend it to the general practitioner.

Nevertheless, in the cases for which it is suited it is pre-eminently useful; and this has been generally recognized in Europe, where all the larger cities now have special institutions for the Finsen light treatment. St. Petersburg, for instance, has no less than three,[1] and through the bounty of the queen a very perfectly equipped one has recently been opened in London. We are certainly behindhand in America. The light treatment is used by a few individuals, and some private institutions are equipped with facilities for its employ-

* Read in the Section on Pharmacology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

1. Von Petersen: Dermatologisches Centralblatt, March, 1903.

ment; but nothing has been done on a large and efficient scale for the sufferers for whom this method affords the best, and sometimes the only means of relief. I know of no institutions comparable to those on the continent, not to speak of the very large and excellent hospital at Copenhagen.

INDICATIONS FOR THE USE OF ACTINOTHERAPY.

The indications for the employment of actinotherapy have become more precise, though its field has been but little enlarged. The tubercular affections of the skin in all their varieties, lupus vulgaris, tuberculosis verrucosa, scrofuloderma, tubercular ulceration, post-mortem tubercle, etc., together with some possibly tubercular affections such as lupus erythematosus, are the diseases in which it is pre-eminently useful. It would lead us entirely too far to review all the reports that have appeared on this subject during the year. A publication of Finsen's, however,[2] must convince the most skeptical of its efficacy. It consists of about twenty-five reproductions of "before and after" photographs of cases, showing results in most virulent, extensive and long-standing cases that can only be characterized as wonderful. The most terrible deformities are definitely replaced by smooth and innocuous scars; and milder cases show hardly any traces of their past disease at all. It is worthy of note here, though of course no one would for an instant doubt the entire reliability of the reproductions, that the patients pictured do not, as has been the case with some of the cures published here, wear exactly the same clothes and trinkets, and have exactly the same arrangement of the hair, etc., in the two photographs taken six months or a year or more apart.

CURES REPORTED.

Series of cures have also been reported by Gunni Busck,[3] Morris and Doré,[4] Kaiser,[5] von Petersen,[6] Huber,[6] François,[6] Leredde and Pautrier,[7] Chatin and Carle,[8] Montgomery,[9] Schmidt,[10] Dryer,[11] Jansen,[12] de Beumann and Degrais,[13] Rogers,[14] and many others. My own testimony can only be confirmatory of these results. Tuberculosis of the skin in all forms can be cured by this method.

Millioz[15] claims to have cured tuberculosis of the joints by actinotherapy. Leredde[16] has employed it with great success in obstinate acne. A few experimenters have used it in tuberculoses of the internal organs, rodent ulcer, epithelioma and cancer, alopecia areata, nevus, etc. We are still not in a position to make any positive statements of its efficacy in these complaints.

In this connection, a word concerning the frequency of lupus and other dermal tuberculoses in this country will not be out of place. The impression prevails that they are of extremely rare occurrence. I very greatly doubt its correctness. We see a number of cases in New York, and by no means exclusively in the foreign-born population. It was believed to be extremely rare in Denmark until Finsen began his work. Yet of the 1,200 or more cases that he treated almost all were natives of that small kingdom. The difficulty is that almost all the cases occur in the very poor, and can not be subjected to a long and expensive office treatment. I have seen perhaps 30 cases in the last two or three years; only ten or twelve of them could undertake treatment, and in some even of these it could not be kept up for the requisite length of time.

THE CHEMICAL RAYS.

In the early efforts at elaboration of the actinotherapeutic methods the pre-eminently chemical rays in the violet and ultraviolet end of the spectrum were regarded as the chief or indeed the only ones that it was desirable to employ. It was evident, of course, that the thermic rays of the red end had to be eliminated as much as possible; the patient's sensibilities soon settled that. The ordinary visual rays of the yellow region and its neighborhood were also looked on as useless; and hence obstacles to their passage, violet or purple glass screens or water-baths with similarly colored media were extensively employed. The method was even called the blue light treatment; some still use that term for it, and others believe that any blue or violet light or spark, no matter from what source of energy, will be efficacious. That position has been virtually abandoned during the past year. The best operators use all the rays of concentrated light, excluding only the red thermic rays so far as may be possible. It is true that the violet and ultraviolet rays are most active, both chemically and bactericidally; but those of the central spectral region are also effective, and there is great loss of power from their absence.

VARIOUS FORMS OF APPARATUS IN USE.

As regards the various forms of apparatus that can be employed, a word of warning is urgently needed. It is a common mistake to take superficial surface reaction as a measure of the efficiency of a machine, and some of the manufacturers do not hesitate to exploit this argument for their advantage. It was attempted with me in the cases of the German dermo-lamp and some of its native imitations. As a matter of fact it would rather be proper to say that surface reaction is in inverse proportion to surface effect. A lamp that causes reddening of the skin after an application of a few seconds, is one in which all the chemotactic effects of the rays are spent on the superficial epidermic layers. Finsen, Bie, and others have taken occasion in a number of communications to emphasize these facts, and to protest against the employment of entirely insufficient and inefficient light sources. There are lamps on the market, both here and abroad, that are entirely useless from a dermatotherapeutic point of view, not to speak of action on the deeper tissues. Some of these are composed of collections of ordinary incandescent lamps run on the ordinary light wiring. They are a delusion and a snare so far as the Finsen method is concerned; for, no matter what their candle-power, or in what numbers they may be combined, their amperage is too low, and they give thermic and visual, but not chemical and bactericidal effects. This can be readily proved by testing with ordinary sensitized paper; chemical action is slow, weak and inefficient, and the very slightest obstacle interferes with it altogether.

Similar if not quite so severe strictures must be made

2. Die Bekampfung des Lupus Vulgaris, Fischer, Jena, 1903.
3. Dermatologisches Centralblatt, July, 1903.
4. Therapeutic Gazette, Aug. 15, 1903.
5. Wiener klin. Rundschau, vol. xvii, p. 17.
6. Dermatologisches Centralblatt, March, 1903.
7. Monograph, C. Naud, Paris, 1903.
8. Monograph, Masson & Cie, Paris, 1903.
9. Jour. of Cut. Dis., December, 1903.
10. THE JOURNAL A. M. A., Feb. 27, 1904.
11. Dermatologisches Centralblatt, February, 1904.
12. Monat. für praktische Dermat., July 15, 1903.
13. Annales de Dermatologie et de Syphiligraphie, May, 1903.
14. Amer. Jour. of Dermat. and Genito-Urinary Diseases, No. 6, 1903.
15. Diet. and Hyg. Gazette, July, 1903.
16. Monat. für praktische Dermat., Oct. 1, 1903.

on the smaller and cheaper arc lamps which are run on currents of from 5 to 10 amperes. There is not power enough in them to get deep effects. Arcs running on a 40-ampere current are as weak as can be used. I employ a 50-ampere arc; the regulation Finsen arcs need 60; and the originator of the method used a 100-ampere arc for his work.

With an efficient arc as the source of light, the surface reaction is usually very slight. There is a slight transitory erythema after each treatment, and a deep though not permanent pigmentation finally appears at the margin of the area that is subjected to it. But penetration occurs, and we can hope to affect not only the subcutaneous but also the deeper tissues. This point was settled by the experiments that I made some two years ago, and an account of which was published in the *Medical Record* at that time. Concentrated arc light, that had passed through the entire thickness of the human chest and abdomen, was successfully employed to make a print from a negative on a sensitive plate. The light had to pass through two layers of skin and subcutaneous tissue, fat, muscle, bone, and the red blood, before it could reach the plate; yet a distinctly marked chemical effect was obtained, and successful diapositives were made.

I have elsewhere described the apparatus that I employ, the actinolite, which is the only apparatus manufactured here that has sufficient power to be effective. A very important practical improvement has been made in it during the past year. The water bath required to cut off the heat rays is no longer a separate receptacle. The two condensing lenses are arranged to form the sides of the bath, the water being between them. Several important advantages are thus obtained. There is one piece less of accessory apparatus, and less weight. Then the entire optical part of the apparatus, the lens-waterbath, can be lifted out for changing the water and cleaning the lenses; it is all perfectly and readily accessible. Finally, and most important, all danger of cracking the lenses from their sudden heating up is entirely obviated by their being in contact with the water. It is decidedly discouraging to break lenses worth from $50 to $100 in one's work; and it is tedious to have to take ten minutes in running up the rheostat when one begins to work. I now go up to full power in 10 seconds or so without the slightest danger of damage. I have now used this modified lens-bath daily for five months, and am well satisfied with it.

The new iron carbons for the lamps that were proposed by Bang and others last year have not proved so effective as was hoped. Bogrow[17] claims that they burn irregularly, and are difficult to keep adjusted. I have found similar difficulties with the iron-manganese carbons that are on the market here; the white smoky vapor that they produce is objectionable. The idea underlying their employment, of course, is to obtain a more powerful blue-violet spectrum from the incandescence of these metals. As stated above, however, the tendency now is to employ almost the entire range of the spectrum; and there is no special reason for using a form of carbon otherwise disadvantageous for the purpose of obtaining a few more violet rays. I propose in the future to employ the ordinary arc carbons.

LIGHT PENETRATION OF THE SKIN.

Finally, there remains to be mentioned the efforts that have been made to favor light penetration of the skin by methods other than the inconvenient and often inapplicable compressors. Dreyr[18] found that the addition of a little erythrosin to nutrient media rendered the bacteria and infusoria in them sensitive to the yellow and green rays, just as it does the photographic plate. Thus, a layer of skin 1.25 mm. thick protected a non-sensitized prodigiosus culture, so that they lived under the light for 11 hours; when the medium was sensitized they were killed in 20 minutes by the same light. In lupus he got a much quicker and greater effect when he used a 1 to 1,000 sterile erythrosin-Grübler solution in physiologic (0.8 per cent.) salt solution. From 0.5 to 1 cubic centimeter was injected after Schleich's method to sensitize an area of from 4 to 6 square centimeters. Four to six hours later, the actinotherapy was applied; vigorous reaction was obtained in 15 minutes in well-vascularized tissue. I have had no personal experience with the procedure. It would probably be impracticable to give the injection several hours before each treatment in any but hospital cases; but if the erythrosin could be applied in some absorptive medium by the patient himself, it might be used.

144 West Forty-eighth Street.

17. Monat. für praktische Dermat., Aug. 15, 1903.

18. Monats. für praktische Dermat., Feb. 1, 1904.

THE DIVIDING LINE BETWEEN THE NEUROSES AND THE PSYCHOSES.*

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WAUWATOSA, WIS.

The temptation to mark out new lines in the field of psychiatry is one that assails all who write on this many-sided subject, and every writer yields to it, the difference being mainly in the completeness of the surrender.

One must classify indeed to write at all, and classification is an alluring and agreeable exercise. Yet I shall indulge in it only to a very limited extent, even though there are few barriers as yet erected in the neuronic territory to keep us from wandering at will. Classifications have, furthermore, contributed much to neurologic and psychologic gaiety, which, in itself, is perhaps a good thing. With all possible respect, one may liken the classifications to a flock of geese, each one of which, however, is to its particular proprietor, a beautiful swan.

Beside the enjoyment to be gotten out of classifications, there is a more substantial good. Doubtless each new effort contains a germ of truth or a new ray of light or a suggestion of interest, and we need discussion and clarification of ideas, admitting that there is as yet no finality, and will not be until we can say more exactly what the brain conditions are which produce mental changes. The disposition, therefore, is natural to shuffle the pack and deal the cards anew, and play the hand as well as one can. The faces of the cards are ever the same, yet the permutations and combinations are infinite in variety. This game, however, is unlike games of chance. The honors are never "easy" and do not come by accident.

Recently, in a meeting of the Section of Psychology of the British Medical Association, Dr. Charles Mercier[1] presented a paper on the classification of insani-

* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

1. British Medical Journal, Oct. 3, 1903, p. 830.

ties embodying his ingenious and familiar ideas as to forms and varieties. Dr. W. Lloyd Andriezen discussed the paper, or rather spoke after it had been read, but without referring to any of the points adduced, utilized the occasion to bring forward his own classification and explain its advantages.

More recently, in the Boston Society of Psychiatry and Neurology, Dr. Charles L. Dana[2] read a paper entitled "The Partial Passing of Neurasthenia," in which he proposed a reclassification of the insanities with inclusion among them of a large section of the hitherto so-called neurasthenias. Dr. Dana's lines of classification, like those of Andriezen, were drawn on an evolutionary basis, which, no doubt, is generally regarded as the safest and most practical foundation for present research. Dr. Dana states that there has been a "renaissance" in psychiatry, and that the good effect has been felt by the neurologist leading to a "more careful study of mental states," which has emphasized the fact that while insanity is "a morbid state, there is a large number of such states that are not insanities, though showing a kinship to them." He would, however, include the so-called neurasthenias which have mental weakness or disorder as their essential characteristic among the mental diseases.

Dr. Dana's proposal emphasizes the fact that insanity has never been satisfactorily defined. He thinks that one-half of the cases now called neurasthenia, including all the hysterias, would thus disappear from among the neuroses and reappear among the psychoses, but makes it clear that if there be a dividing line between neuroses and psychoses, insanity exists on both sides of this line, so far as the views now generally prevailing are concerned. It is also true that in adding certain cases of neurasthenia to the insanities he is adopting a view that has long been entertained by alienists.

Speaking only of recent American writers, I may allude to a very able discussion on "The Borderline Between Sanity and Insanity," in 1898, by our lately deceased confrère, Dr. E. C. Runge,[3] before the American Medico-Psychological Association, in which he uses the following language: "When we admit that a case of so-called cerebral neurasthenia may at times simulate the profound psychic changes of the prodromal phase of dementia paralytica so closely as to render an error of diagnosis not only possible but excusable, we put neurasthenia at once in its proper place. Every neurasthenic is, to a variable degree, a psychoasthenic. The question is one of degree only, the varying intensity of the disease can not possibly affect its fundamental character." Runge also shows that the only difference between delirium and postfebrile insanity is often simply one of duration. The conclusion which he formulated seems to me irresistible, namely, that "insanity is the symptom of any pathologic process implicating the psychic centers of the brain, hence the borderline between sanity and insanity lies at the point where brain disease parts ways with brain health; by brain being meant its psychic centers."

In this connection I may be pardoned an allusion to a discussion of this point by myself before this Section two years ago.[4] In writing on "Hospitals for the Neuropathic and Psychopathic," I said: "Either the two classes belong together to a great extent or their separate needs have been largely ignored." I then showed how a large proportion of the "neurotic" are really insane, and are found among the inmates of public asylums, while "nervous prostration" is often a polite misnomer for insanity, the only distinction between a large number of patients in any private sanitarium and those in public hospitals for insane being that the former are blessed with longer purses. The phobias, the obsessions, hysterias, hypochondrias, the confirmed drug and drink victims are certainly cases of mental as distinguished from nervous disease. No definition could be framed which would include insanity and exclude these cases. It is also true that the hemiplegias, the apoplexies, the toxemias and even the heart, kidney and arterial diseases, accompanied by disordered brain function, have insanity as a complication. Nevertheless, these cases are not generally regarded as insanities, either by the profession or the public, though technically they are such, for they are "a seriously [and persistently] impaired condition of the mental functions involving the intellect, emotions or will or one or more of these faculties, exclusive of temporary states produced by and accompanying acute intoxications or acute febrile diseases.[5]

And here the fact is strongly brought out that the word "insanity" means everything or nothing, according to the use made of it by different persons. Insanity is very generally accepted as a generic term for all abnormal mental action produced by disease or defect or disorder of brain. In another sense it is applied only to offensive or dangerous mental states, which causes a natural and nearly universal feeling that we do not wish it applied to ourselves or our friends, however appropriate it may be for others. It has, in a lesser degree, the suggestion about it of the older word "lunacy," which in its day was equivalent to possession by the devil. Hence, it is abhorrent to call neurasthenia and hysteria *et id genus omne*—"insanity." This confusion will, in my opinion, ultimately result in the abandonment of the word. Its meaning in law, in medicine, in common parlance and in psychology is variable and confused to the last degree. No complete nor generally acceptable definition of it has been or can be formulated. It is, we often remind ourselves, only a symptom of brain disease still more or less obscure in its nature, and yet we must, in a practical way, consider and treat it as a disease in and of itself. Psychosis is a preferable term. It is less objectionable and more indefinite, and I submit that an indefinite word is better calculated to define an indefinite thing. The meaning of insanity can not be properly limited to offensive or dangerous cases. The neurasthenias are, all will admit, psychoses, but the insanities are psychoses in precisely the same sense and it seems inaccurate to call one psychosis insane and another sane simply to please the ear unless there be some radical difference in fundamental nature. If "major" and "minor" are acceptable, no alienist would object, even though the word "psychosis," like "hysteria," may be mildly objected to. There are many patients who do not care to be told they have hysteria, either "major" or "minor,' and of course nothing will overcome the objection felt by wounded pride to acknowledging infirmity in the highest faculties. If, however, psychosis be accepted, a gain in clearness will have been won and

2. Boston Medical and Surgical Journal, March 31, pp. 339, 352.
3. Transactions of the American Medico-Psychological Assn., 1898, vol. v, p. 114 et seq.
4. Hospitals for the Neuropathic and Psychopathic, THE JOURNAL A. M. A., Sept. 27, 1902.
5. Century Dictionary (["and persistently"] is added from the "Standard Dictionary").

the unnecessarily painful associations of "lunacy" and "insanity" will be avoided. Furthermore, along with the passing of neurasthenia, there should be a passing of the word insanity and with it an unnecessary opprobrium will also have disappeared.

I may advert here to another utterance showing the obscurity of the word insanity. In an ingenious article in a recent issue of the *Alienist and Neurologist*,[6] Dr. J. W. Wherry proposes that the word insanity shall be applied only to delusional states, but as insanity is fully as much a symptom of emotional and volitional, as of intellectual states, the proposal seems impracticable. Furthermore, all the phobias and obsessions belonging to conditions not generally regarded as insanity would have to be renamed.

The delirium of fever differs from insanity only in duration and not in kind. If it is insanity when continued three months, it is insanity when continued three hours, at least there is nothing to show at what point a dividing line exists, and to give widely different names to stages of the same disease leads only to confusion. We may correctly say a psychosis complicates a fever, whether the complication be of three hours' or of three months' duration. The phobias of the neurasthenic, the obsessions of the hysteric, the illusions of the hypochondriac differ only from the wildest delusions of the maniac in degree; at least, if they differ in kind, we are not yet prepared to demonstrate the fact. The "phobia" of the neurasthenic which transforms *muscæ volitantes* into threatened blindness or creates cancer or heart disease out of nothing is insanity, even though it has been unrecognized by our neurologic brethren.

I can agree, from my own experience, with Dr. Dana's statement that very many cases of so-called climacteric insanity have always been psychopathic and have had attacks of mania or severe neurasthenia in early life from which they have never fully recovered.

One further reflection and I am done. The last idea I wish to advance is that the progress made in classification in nervous and mental diseases of late has largely been in the direction of obliterating lines rather than in drawing new or closer ones.

In the classification of insanity, the views of Kraepelin which meet with general favor have been characterized by throwing together cases formerly classified separately. If there was formerly any agreement as to species of insanity, certainly "mania," "melancholia" and "dementia" were considered stable and well defined, but the line between the two first has been erased by forming one group, embracing largely the acquired insanities and terming them the "manic-depressive insanities" or "mania-melancholias," while dementia has been applied to another great group of the primary insanities with the prefix "precocious" and subdivisions into "hebephrenic," "catatonic" and "paranoid," thus leaving "paranoia," while in the differentiating stage, somewhat suspended in midair. This conception of "dementia precox" modifies greatly the meaning of "dementia" as formerly understood and includes an extensive class of cases formerly not classified as dementia, and, indeed, not possessing the character formerly attributed to dementia by English writers.

Now turning to Dr. Dana's proposal that the neurasthenias shall largely be classified as psycho-neuroses or "phrenasthenia," thus bringing them under the category of mental diseases—or, as one may say, with bated breath, "the insanities"—we see an opinion expressed by the neurologist with which the alienist can heartily concur and in fact a proposition which is not new to the latter. At the same time this means the destruction of lines formerly rather generally agreed on of distinction between insanity and various so-called neuroses (hysteria, neurasthenia, hypochondria. the various phobias and obsessions), and the transfer of a large group from the field of neurology to that of psychiatry.

On the whole, I fear I may be accused, in writing on this subject, of writing on something non-existent, or at least on a most vague and indefinite subject, and this I must admit, only urging in my own defense that we are not yet in a position to secure scientific accuracy and will not be until the changes from health to disease going on in the brain, of which insanity is the symptom, can be localized and qualitatively and quantitatively understood. We may appear at present to be going backward, changing and undoing the work of our predecessors, rather than advancing; nevertheless, true progress frequently requires such a process as new lines of investigation are discovered and new working hypotheses are adopted.

6. Alienist and Neurologist, April, 1904, p. 147.

MEDICAL PRACTICE IN SIBERIA.

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REQUIREMENTS FOR MEDICAL PRACTICE.

The rules of medical practice in Siberia are the same as in European Russia; that is, for the whole Russian Empire, from the Baltic Sea and the German-Austrian frontier up to the Pacific Ocean—Vladivostok and Port Arthur—there is one medical law: For the right of practicing medicine one must be graduated from one of the ten imperial universities of Russia. The university can be attended only by those graduated from a classical high school (eight years' studies), the so-called gymnasium, while the time of study in the university is not less than five years. After graduation, each student is permitted to take the state examinations, always oral. If the student be successful in these "final" examinations, he gets his diploma, and the right to practice medicine throughout the Russian empire and to fill any medical position in the army, navy or civil services, etc. For the higher medical positions, as well as for professorships, the physician must take new examinations on certain subjects, prepare a scientific work and defend the same openly. Then he gets the second, highest medical degree, *doctor medicinæ* (doctor of medicine).

Thus the medical practice in Siberia is in the hands of people who have received a complete preliminary general education and a special medical one from a university.

UNIVERSITY EDUCATIONAL DISTRICTS.

The Russian government decreed in 1899 that each university should accept only students belonging to the educational district in which the university is located, so that a graduate from the Siberian gymnasium can attend only the University of Tomsk, but by no means the University of Kazan or Moscow. These universities can be attended only by students from their respective educational districts. A graduate from the gymnasium in Odessa, for instance, can study medicine only in Odessa, but not in Moscow or Petersburg.

The majority of young physicians in Siberia are thus graduates from the University of Tomsk, although there

are very many physicians in active practice who were graduated from other universities.

GENERAL PRACTITIONERS AND MEDICAL OFFICIALS.

When a young physician in Russia gets his diploma, he has in view either to practice in some city as a general practitioner or specialist ("voluntary" practitioner), or to get a position as a district or county physician, military physician, etc. All these positions are more or less paid, so that the Russian physician is in very many cases practically independent of private practice, forming the class of so-called "serving" physicians. The latter class is in Russia quite numerous, especially in the small cities of central, north and east Russia, being comparatively less numerous in the larger cities. In Siberia, where the population is sparse, the acting physicians mainly belong to this class. For instance, to take the city where I was practicing (Yenisseysk, with a population of 10,000), there were seven physicians for the whole city. Three were general practitioners, and five held salaried positions as follows: One was a physician in the gold mines of the Yenisseysk district; one was city physician; one physician in the city hospital and for the prisoners; one was district physician, and one in the city dispensary. The same comparative proportion between these two classes of medical men exists in other cities of Siberia. Thus in Krasnoyarsk, the capital of the province of Yenisseysk, with a population of 30,000, there were in my time (1898-1901) twenty-four physicians, and all except one occupied some official medical position.

SALARIES OF MEDICAL OFFICERS.

Regarding the material part of the latter, I will give here the amount of salaries of my colleagues of the city Yenisseysk: The doctor of the gold mines received 2,500-4,000 roubles a year (about $1,250-$2,000), depending on the number of workmen in the mines, counting 1 rouble—50 cents—per capita; the city physician received 1,000 roubles a year; the physician of the city hospital and jail, 1,000 roubles (with a flat, heating and light); the district physician, 1,200 roubles; the dispensary physician (two hours daily), 600 roubles. It is obvious that the salary alone can not always secure a good living, therefore, some physicians also resort to private practice which, however, is entirely in the hands of the "voluntary" physicians.

SUPPLY OF PHYSICIANS IN THE CITIES.

From what was said above, it will be seen that a city of 10,000 population, with eight physicians, is quite sufficiently supplied with medical assistance. Generally speaking, the cities of Siberia, and still more so those in Russia, feel no lack of medical aid, while in some parts of Russia there is even an abundance of physicians.

SUPPLY OF PHYSICIANS IN RURAL DISTRICTS.

The same can not be said regarding the rural population. Siberia mostly consists of villages; there are but few cities. The villages are scattered at great distances from each other, the usual distance being 13 to 15 versts, or about 10 miles. In places remote from the populous districts the villages are 30 to 50 miles apart (so is it, for instance, in the province of Yenisseysk on the rivers of Chuna and Mura). It is evident that a physician can not live from private practice in a village, and the government can not afford to have even one physician for each three villages; therefore, each Siberian province is divided into medical districts.

THE DISTRICT PHYSICIAN.

Before the year 1898 the province Yenisseysk, which contains about 1,000,000 square miles, was divided into six districts. For each district there were two physicians—one for purely medical purposes, the other one for medicolegal ones. Both physicians used to live in the capital of the district. In case of need, as, for instance, an epidemic, the physician was notified by the authorities through a special messenger or mail which visits the villages once a week and the cities twice or three times a week (where the train passes through a village or town the mail may be obtained every day). The physician then started to the corresponding place on his *povoska* (traveling sleigh). On account of the long distances between the villages and the obsolete methods of communication, much time is lost before the necessary point is reached. It is obvious that good and prompt medical services are, under such conditions, entirely impossible.

OFFICIAL VISITATIONS OF THE DISTRICT PHYSICIAN.

The district was officially visited by the physicians once a year, usually during the summer time. Some parts of his district were visited oftener, depending on the distance, but practically the population was all the time without any medical assistance, as in urgent cases it was impossible to get the doctor. During epidemics, when many villages needed the doctor at the same time, he traveled from one village to another, merely recording the fact that such or such an epidemic exists, the number of the sick, and, finally, making a corresponding report to the medical authorities of the province. So it was with me.

PERSONAL EXPERIENCES.

In December, 1897, the medical board of the province of Yenisseysk sent me to one of the remote districts of this province to help out the district physician on account of an epidemic of typhoid fever. The district physician was busy in other parts of his vast district, and, therefore, could not himself visit the place where I was sent. I started immediately from Krasnoyarsk, traveled more than 800 miles, passed through numerous villages, having found but one case of acute tuberculosis, and very many cases of measles. Of course, I could not do anything good for the unhappy children, as I had to visit during one month a large district, and one or two hours on an average was all the time I could spend in each village; otherwise I would be unable to return to my medical duties at the necessary time.

UNHYGIENIC CONDITIONS.

The hygienic conditions of peasant life in Siberia are extremely bad. The whole dwelling often consists of a single large room, which is ventilated in the winter time by opening the door for a few seconds. A flood of cold air thus fills the room, so that the ventilation brings cold simultaneously with fresh air. The more well-to-do peasants have two or three rooms; one is kept always clean for occasional guests or officials. The crowded, dirty conditions of life, together with the absence of good and proper nourishment, are the cause why epidemic diseases prevail among the peasants in Siberian villages with high mortality and frequent complications.

MEDICAL AID.

The physician during his official trips carries a small "drug store," distributing medicines *gratis*, of course, to the patients. It is obvious that a patient with a chronic

disease, waiting about a year for the doctor's call, can not be even a little bit improved from taking a few powders or a tincture. The chronic diseases which prevail most are rheumatism, bronchitis, and all kinds of gastro-intestinal and venereal troubles. The existence of such a system of medical services was too absurd, and was recognized as such by every physician in charge of a district practice. When I returned from my trip, I asked my colleague, the district physician for about twelve years, what was the aim of his useless services for so many years. He answered: "The necessity to feed my family." Even if there were some dose of usefulness in this system of medical practice, it could in no way justify the immense expenses of government and the population.

Since 1898 some reforms have been made in the medical practice of Siberia, namely, each of the six districts was divided into smaller portions with one physician in each. The physician was given an assistant and one midwife. The Yenisseysk district, for instance, was divided into three smaller districts with three physicians, and the latter had to live, not in the capital of the district, but in the villages, according to the number of inhabitants. The office of a separate coroner physician was abolished, the medicolegal duties being placed in the hands of the district physician.

THE "FELDSHER" ASSISTANT.

The physician's assistant, the so-called "feldsher," is something like a trained nurse, but with a broader medical education. Each feldsher, according to the present laws of Russia, must have a fair preliminary education, attend three or four years a medical school, which is usually connected with some large hospital, and having passed successfully the examinations gets certain rights to practice medicine, namely, in localities where there are no physicians. The feldshers have, in the majority of cases, a good practical training, can sometimes make correct diagnosis and successfully carry out the corresponding treatment. They are very numerous in Russia, playing an important part in the medical life of the rural population, not only of Siberia, but even of Russia, as they supply the lack of physicians and medical assistance which is felt to such an extent in Siberia.

MEDICAL FACILITIES.

The reforms of medical practice in Siberia have been carried out, but the aim was not reached, as three physicians instead of one for a district larger than the State of Illinois and with obsolete methods of communication, can not be of much avail to the population. The latter does not benefit much, from the fact that the doctor instead of ten days or more has to travel (with horses) only three days, so that the result is an immense increase of the expenses with no practical good results. The physician in such circumstances passes most of his time in his traveling sleigh, has very little rest and no moral satisfaction. Therefore, more or less conscientious physicians, with good intentions, try to abandon such an useless play and to establish themselves in some city or not far from even a very small town. Some of the district or county physicians possess small hospitals with a few beds, but such hospitals are not of much use, as they lack proper accommodations and sufficient size.

THE DISTRICT PHYSICIAN AND MEDICAL SCIENCE.

The physician being entirely alone, far from his colleagues of the town, must work successfully in all branches of medical science, be, so to say, a specialist in all branches of medicine, so that there is absolutely no possibility or chance of becoming in time a useful contributor to the science.

THE ZEMSTVO OR PROVINCIAL COUNCIL.

In European Russia a similar system of medical practice in the villages exists, but in more perfect conditions, thanks to the fact that it is not in the hands of the government, but in those of the *zemstvos*, the provincial councils. The conditions of medical practice there are much better, and the so-called *zemstvo* physicians play in Russia a great rôle, not only in the medical or sanitary life of the country, but also in civilizing the population, as well as in contributing to medical science. Some of the zemstvo doctors have appeared as great physicians, as, for instance, Vladimiroff (the author of the so-called Mikulicz-Vladimiroff operation), Razumovsky (professor of surgery in the University of Kazan), Komarovich, Yakovenko, etc., but in Siberia medicine, one may say, exists as yet in an embryonic state, this largely depending on the ignorance and rarity of the population as well as on the lack of means.

THE HOSPITALS.

I would like to say a few words regarding the condition of Siberian hospitals. These may be divided into private (i. e., founded from private donations) and governmental ones. The latter are in the hands of an obsolete institution, "the department of public health." The private hospitals are conducted most satisfactorily and correspond completely to all needs of science, but such hospitals are very few, almost exclusively in Irkutsk and Tomsk, the two largest cities of Siberia. The governmental hospitals, which exist in every town of Siberia, are in such a horrible condition that I would like better to give here the description of one of them by Dr. Ssalishtcheff, late professor of clinical surgery in the Imperial University of Tomsk,[1] made by him in an article published in 1897.

DESCRIPTION OF A PUBLIC HOSPITAL.

"The surgical clinic," says Ssalishtcheff, "is, together with the hospital clinic for internal diseases, under the supervision of the Department of Public Health. This hospital consists of two one-story buildings—one for males, the other for females. For the male surgical patients there are three rooms in the former, while patients with internal diseases are also occasionally placed in the same rooms. The fourth room serves for surgical operations. In the female department there are no separate rooms for surgical patients, who are there placed together with patients suffering with other diseases—for instance, syphilis, internal diseases, etc. The hospital has no separate rooms for infectious diseases, so that patients with ulcerations, suppurations, erysipelas, gangrene and inoperable cancers and those who are going to be operated on are all accumulated in one large ward 'for the sake of isolation.' This ward opens into a corridor about six and a half feet wide, into which open also the other wards of the surgical department. This hall is 'ventilated' at both ends through the exits into the anterooms, while at the same time mephitic fumes pour in from the most primitive privies.

"Beside this, in this corridor there meet every morning a great many new patients, who gradually abandon this place toward 12 or 1 p. m., leaving their *aroma*. These patients are usually dressed in dirty sheepskin coats and dirty, wet felt boots. It is obvious that the

1. Arch. für klinische Chirurgie, 1897, llv, No. 1, p. 135, etc.

isolation of patients in the large ward can not even be thought of. The best room, the so-called 'paradise,' serves for operations as well as for examination of new patients, but the room is far from corresponding to the rules of hygiene. In this room there are eight patients; each of them has about 25 cubic yards of air and about 7 square yards of floor space, with the ceiling about 10.5 feet high—i. e., one-half the minimum required by hygiene. In the large ward the patients have considerably less cubic feet of air and floor space. The air is in all the rooms reeking with CO_2; according to Timasheff, the average proportion is about 2 per thousand. Such a horrible antihygienic condition of the hospitals is not encountered in the zemstvo (provincial council) hospitals of even the smallest towns of European Russia.

"On account of lack of beds, the patients often have to lie on the floor. The rooms are poorly lighted through small, frost-covered windows. The wards are cold during the winter time, while the nurses live constantly there with all their household effects. Near the beds of the patients there are placed the most primitive, malodorous night-stools, and everywhere there naturally reigns an unavoidable but yet tremendous dirt. Dr. Timasheff found that about 20,000 to 89,000 bacteria fall on the surface of each square meter, and in the surgical room, during operations, 295 bacteria fall on one square decimeter in the course of five minutes, and 600 bacteria in ten minutes. Despite the fact that it was so hazardous." Ssalishtcheff continues, "to operate among such circumstances, we gradually succeeded in performing the most difficult and complicated operations, and, in the great majority of cases, with the best results.

In the above-described sad conditions are the hospitals in the majority of small Siberian cities, although lately new hospitals have been erected, as, for instance, in Yenisseysk, but with such inadequate equipment and facilities that one can not even think of carrying out any scientific treatment, and still less any scientific researches.

CLINICAL AND HISTOLOGIC OBSERVATIONS ON SYMPATHETIC OPHTHALMIA.*

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PHILADELPHIA.

At a meeting of this Section five years ago, Gifford, of Omaha, advocated the employment of large doses of salicylate of sodium in the treatment of sympathetic ophthalmia, his experience with the remedy having been such that he said, "I do not hesitate to recommend it as the most important remedy that I know for the disease." His method of employing the drug is to administer from "10 to 13 grains in the course of 16 to 18 hours for each 10 pounds of the patient's weight," preferably in brandy, 15 grains to the teaspoonful, followed by a copious draught of water. If there is any indication of heart disease, it is, of course, necessary to begin with smaller doses. In the general discussion which followed, but one of the members present reported any experience in the use of the drug in this class of cases; and, as the number of cases of sympathetic ophthalmia observed by any ophthalmic surgeon during the course of the disease must be relatively small, I venture to report, in some detail, the histories of two cases treated within the past few years, with the hope that in the discussion, which I trust will follow, will be brought out the experience of the members regarding the best methods of dealing with this much-dreaded affection.

CASE 1.—F. S., male, aged 24 years, was first examined June 19, 1902.

History.—Eight years before he had been struck on the left eye, in the ciliary region, by a piece of glass which he thought had penetrated the eyeball. He was at once taken to a hospital, where an operation was performed, but the nature of the operation he does not know. The piece of glass was not found. The inflammatory symptoms continued for many months before the eye became white and quiet, and no vision remained. From this time on, at varied intervals, sometimes occurring as frequently as every two or three months, there appeared attacks of redness in the right eye, together with slight dread of light and inability to use the eye for continued near-work, always preceded by one or two days of redness and tenderness of the left eye. For this condition he had consulted ophthalmic surgeons at different hospitals, always being advised to have the left eye enucleated, and always declining to follow the advice. Four weeks before my examination he was struck by a baseball on the affected eye. At the time of the accident both eyes were perfectly quiet, but on the following day severe inflammatory symptoms appeared in the left, the eye being very red and painful on pressure. Three days before I was consulted, the vision of the right eye began to fail rapidly, and when I saw the patient was equal only to 6/45. It had commenced without any premonition, and there had been no symptoms of redness or irritation of any character in that eye, with the exception of a desire to avoid very bright light.

Examination.—There was found in the right eye a somewhat hazy cornea with numerous punctate spots on the posterior surface, especially in the lower part, a very sluggish moderately contracted pupil, scarcely any reaction to light being detected; more spots, or deposit, on the anterior lens capsule in the pupillary space, and a very hazy vitreous with only a red glare from the fundus There was slight ciliary injection and considerable photophobia, though no point of special tenderness could be detected in the ciliary region. In the left eye there was also moderate ciliary injection, considerable tenderness on pressure, especially over one point in the ciliary region and the tension was markedly diminished. The cornea was normal, and the pupil was entirely closed, the iris being drawn into a corneo-scleral wound below.

Evidently the piece of glass had entered the eye in the neighborhood of the corneal limbus below, involving the cornea and sclera, the iris had prolapsed and had been excised at the hospital, a portion of the prolapse had remained in the wound, a long siege of uveal inflammation had ensued, and this, in turn, followed by repeated attacks of sympathetic irritation for eight years. At the expiration of this time a severe blow had been received on the eyeball, followed immediately by a recurrence of the old uveitis, and three and a half weeks later by a typical attack of sympathetic uveitis in the other eye, the latter having appeared without any previous symptoms of irritation.

Treatment.—The offending eye was at once enucleated, atropin instilled in the right eye, and the patient given mercurial inunctions and potassium iodid to the point of tolerance. In spite of this, vision became rapidly worse. Subconjunctival injections of cyanid of mercury and pilocarpin sweats were now employed, but also without appreciable effect. Vision was now only 1/45 of normal. Salicylate of sodium in 20-grain doses four times a day was now ordered, and as no improvement was noted after four days' use, the dose was increased to 30 grains every three hours, or 150 grains during the twenty-four hours.

Result.—Within a week after beginning this amount the vitreous began to clear and the aqueous to become less turbid. The patient continued this amount daily for three weeks, the vision improving gradually all the time, and after this

*Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

for four days only in each week. At the expiration of two months from the time of beginning the administration of the salicylate of sodium, the cornea was clear, except a slight stippling in the lower part; a few minute spots of opacity remained on the anterior lens capsule, the pupil was somewhat more sluggish than normal, the vitreous was slightly hazy, the margin of the optic nerve was decidedly veiled, and vision equaled 6/9. For some weeks afterward the patient continued to take 150 grains of the drug one day in each week, and there had not been any relapse in a year and a half. Since this time the patient has not been seen.

CASE 2.—W. B., a boy aged 8 years, on July 3, 1903, exploded a dynamite cartridge which he had found around some quarries, several pieces of the shell striking him in the face and eyes. He was at once seen by a physician, who ordered some cleansing lotion. On July 6, three days later, he was brought to the Jefferson Medical College Hospital.

Examination.—An examination showed numerous cuts and burns on both sides of face and eyelids, a few pieces of shell being buried beneath the skin surface. In the right eye the ocular conjunctiva was somewhat chemotic, the anterior chamber entirely filled with blood and 3 mm. down and in from the corneal limbus, directly through the ciliary body, was a circular opening 2 mm. in diameter, through which a small prolapse of the ciliary body and choroid protruded. Tension was —2, and vision equaled the counting of fingers at 3 feet. In the left eye, 4 mm. down and out from the corneal limbus, directly through the ciliary body, was a circular opening 1 mm. in diameter. The cornea and aqueous were clear, the vitreous was very slightly hazy, down and in, but the fundus was normal in all respects. Atropin was instilled, and a later examination through the dilated pupil revealed two small pieces of brass, which could be seen not only with the ophthalmoscope, but by means of oblique illumination. One of the pieces was located just behind the lens, near the lower margin, and to the left of a vertical axis; the other, somewhat deeper in the vitreous, to the right of and somewhat below the optic axis. Both pieces were small, gave the bright reflex of brass, and were slightly mobile in the vitreous immediately surrounding them, the latter being the only portion of the vitreous that presented any haziness. The tension was —1, and vision equaled 15/LXX. The prolapsed portion of iris and choroid in the right eye was excised, the wound cauterized, atropin instilled, the constant application of cold compresses employed, and mercury administered internally.

A skiagraphic examination of the right eye was now made, and showed one large and possibly two very small doubtful shadows. We were, therefore, confronted with a most difficult problem. Both eyes contained foreign bodies, both had useful vision, and the right had suffered from a prolapse of the uvea, which had been excised. Should we, therefore, enucleate the right eye (by far the worse) in an effort to prevent sympathetic trouble in the left, or should we permit it to remain and watch for symptoms, inasmuch as the left eye also contained two foreign bodies? Dr. Howard F. Hansell, in whose service at the hospital the patient was seen, very kindly examined the patient with me, and agreed that the latter was the better plan to be pursued.

On July 27, three weeks from the time of admission to the hospital, the patient was discharged with instructions to return to the dispensary every other day for examination. At this time the right eye was still slightly red, but not painful. The anterior chamber was free from blood, but no view of the fundus could be obtained. Tension was normal. In the left, which was perfectly white and quiet, a slight cloudiness of the vitreous was noted in the immediate neighborhood of the foreign bodies (less than at the time of admission), but otherwise the vitreous was clear and the fundus normal, vision equaling 15/XX. On August 3, a week later, the patient was brought to the dispensary for the first time since being discharged. Examination showed a distinct optic neuritis in the left eye, with very minute deposits on the posterior corneal layer and on the anterior lens capsule. The vision was not so good as it was a week before, there was some dread of light, the eyeball was slightly congested, and the right eye also appeared more red and tender than when he had left the hospital.

Treatment.—It was believed that we were in the beginning of an attack of sympathetic ophthalmia, so the patient was again admitted to the house, the right eye enucleated, and the administration of mercurial inunctions and iodid of potassium begun at once. The eye had been under the influence of a mydriatic, and hot fomentations had been employed since leaving the hospital. On the following day the nerve was much swollen, the vitreous seemed to be filled with powder-like opacities, and there were many more spots on the cornea and lens capsule. On the latter the spots were arranged in a circle just within the border of the moderately dilated pupil. Vision was now 15/C, and in a few days more equaled only the counting of fingers at a few feet. No details of the fundus could be determined. As the eye had been growing rapidly worse under the use of mercury and the iodid, the patient was now ordered 80 grains of salicylate of sodium in the twenty-four hours, which was increased to 100 grains in a few days. Except for some dyspnea, this dose produced no disturbance, and in ten days' time the vitreous became sufficiently clear to permit a vessel to be seen here and there. This dose of salicylate was continued daily for about three weeks, the vision gradually improving as the vitreous cleared and the spots on the cornea and lens disappeared, at the end of which he was discharged from the hospital with a perfectly quiet eye and visual acuity of 15/L. The two pieces of brass could now be distinctly seen, and occupied relatively the same positions that they did at the time of the first examination. The salicylate was discontinued, but on the fourth day after leaving the hospital, the patient returned with a congested tender eyeball, a more hazy vitreous and vision again reduced. Within a week after resuming the use of the salicylate, the congestion disappeared, and the vitreous assumed the condition it had at the time of the patient's discharge; still somewhat hazy, but with vision equaling 15/L, and a subsidence of the neuritis. Between this time and January 12, a period of about four months, the administration of the drug was discontinued six times, and on each occasion the eye became worse, and immediately regained its former condition on resuming the use of the remedy. Toward the end of this period, the length of time the eye remained free from trouble when the salicylate was not being employed gradually increased, the last being of three weeks' duration. During one of the interims when salicylate was not being employed, pilocarpin sweats were tried, but without any appreciable effect. The remedy was now given in full doses on four days of each week for six weeks, and then one day of each week for a month, when it was discontinued.

Result.—Since this time there has been no recurrence. The vitreous is still somewhat hazy and there are some deposits on the cornea and lens capsule, but the neuritis has entirely subsided and the patient has a quiet eye with useful vision of 6/12. Whether further attacks will recur subsequently, or whether the pieces of brass will in course of time produce some intraocular reaction, it is impossible to say.[1]

Macroscopic Examination of Both Eyes.—When the eye of Case 1 was opened, a piece of glass was found which had broken loose partially from an extensive mass of exudate in the ciliary region, the latter extending forward to the original point of entrance. I regret that no inoculations of culture media were made from the end of the optic nerve at the time of enucleation, but, unfortunately, no facilities were at hand for doing so.

On opening the eye of Case 2, three pieces of brass were located; a very small piece in the cornea, another minute particle in the tissues surrounding the optic nerve which had probably been carried there at the time of bisecting the globe, and a third and large piece in the choroid just posterior to the equator of the eyeball. This last piece had entered through the ciliary body, and had ploughed a furrow from the point

1. Six months after presenting this paper there had been no further recurrence and the visual acuity was maintained.

of entrance to its resting place, through which the sclera was distinctly visible.

Microscopic Findings in Both Eyes.—Microscopically, each eye showed a dense infiltration with leucocytes of iris, ciliary body and choroid, all of these membranes being greatly thickened. The pupil in Case 2 was closed with exudate, between which and the iris it was almost impossible to differentiate. The retinæ were slightly infiltrated, very edematous and thickened, much more marked in the posterior portion of the eye. All the penetrating vessels and nerves showed marked increase in leucocytes and connective tissue cells. The vitreous was also filled with leucocytes. The optic nerve of Case 2 showed a slight degree of papillitis, and the central vessel, as far back as sections were obtained, also showed evidence of inflammation by the increase of leucocytes. Some leucocytes were also noted in the intervaginal space.

Cross-sections of the optic nerve of Case 2 showed a most peculiar condition. Scattered throughout the sections were areas of degenerated fibers, most marked in the immediate neighborhood of the trabeculæ, but occasionally involving a complete bundle of fibers, and more rarely two or three adjoining bundles. In none of the sections was the degeneration found in the center of a bundle alone. It always seemed to begin at the trabecula and pass inward toward the center. In some of the sections the degenerative areas were most marked in the immediate neighborhood of the central vessels, and from these similar areas spread outward in different directions. These sections were examined by Dr. William G. Spiller, professor of neuropathology in the University of Pennsylvania, who believed that the condition was due to the passage of toxins along the trabeculæ of the nerve, as is seen in nervous tissue elsewhere in the body.

As soon as the optic nerve of Case 2 was severed and the eyeball rotated forward, inoculations of culture media were made from the severed end and sent to the laboratory of the Jefferson Medical College for a report. In forty-eight hours a culture developed, which was composed of cocci, and which, morphologically, tinctorially and biologically, corresponded to the *Staphylococcus pyogenes aureus*. This same micro-organism has been found inside of some of the blood vessels adjoining the optic nerve.

REMARKS.

In these two cases there is a wide difference in the time of appearance of the disease in the sympathizing eye. In the first case the inflammation did not become manifest until eight years after the injury, the piece of glass remaining in the eye during this period. It seems quite plausible, however, that the blow on the eye, which was received three and a half weeks before the onset of the affection, disturbed the position of the piece of glass, that had remained quiescent for so long probably because it had been encysted, and brought about a recurrence of the old uveitis, which was followed by the sympathetic attack in the other eye. In the second case, the inflammation appeared at the end of the fourth week. It may be urged by some that the piece of brass in the affected eye may have had something to do with the subsequent symptoms as they presented themselves, but, beyond a slight localized inflammation of the vitreous immediately surrounding the foreign bodies, I do not believe that this was true. It is not likely that foreign bodies in the vitreous would give rise to the chain of symptoms above described, exactly simulating those of sympathetic ophthalmia, continuing the course of the latter disease and finally terminating in recovery. Besides, it is a well-known fact that pieces of brass may lie dormant in the vitreous indefinitely, and that when they do set up inflammatory reaction the symptoms are not like those of sympathetic uveitis.

The onset of the disease in both cases without any premonitory symptoms agrees with the experience of others on this point. In the first case there had been repeated attacks of irritation for several years, but when the typical sympathetic inflammation manifested itself, it did so suddenly, with no other symptoms observable to the patient than rapidly failing vision. This would indicate, as pointed out by Gifford, that the vision should be carefully ascertained each day, as its failure would seem to be among the first noticeable signs of the advent of the disease.

The value of the administration of large doses of salicylate of sodium demands especial mention, and corroborates the experience of Gifford and others who have given the remedy a trial. In both cases, mercurial inunctions, the iodids, subconjunctival injections and pilocarpin sweats not only failed to ameliorate, but even to check the progress of the affection. In the first case, the symptoms promptly abated after the administration of the remedy was commenced, and in the second case the symptoms were not only abated, but rapidly returned on each occasion that the use of the drug was discontinued during a period of several months. My experience fully concurs with that of Gifford, that the drug must be administered in large doses to be of value, and, should I have under my care a patient whose stomach would not tolerate such doses, I would attempt, as he has suggested, its administration by rectum, or perhaps by inunction. Should there be any heart or nephritic disease, smaller doses must be given at first and the effect carefully noted, but it is my belief that these small doses will not be found sufficient to control the sympathetic affection. The addition of a teaspoonful of brandy, as suggested by Gifford, or of a few drops of the tincture of nux vomica, or aromatic spirits of ammonia, to each dose has appeared of value, not only in increasing the tolerance of the stomach to the drug, but in relieving, to some extent, the more or less depressant effect on the heart.

As to the theory of the production of the affection, these cases, unfortunately, like so many others, do not throw much light on the subject. Both cases would seem to indicate that the disease is an infectious process arising in the primarily affected eye, and by some means of exit leaving that eye to obtain a resting place and a good breeding ground in the other. As to the manner of exit, the first case gives no information; but it seems to me that in the second case the condition of the optic nerve and the central vessels would indicate that at least some of the infectious material passed outward in this way.

THE GENESIS OF SYMPATHETIC OPHTHALMITIS.*

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Thirty years ago, it is safe to say, there was but one view held as to the genesis of sympathetic ophthalmitis. The doctrine of Mackenzie that the optic nerve played the chief rôle in the transference of the inflammation from the exciting to the sympathizing eye, had been universally abandoned, and the view that the pathologic changes in the secondarily affected eye were the product of an influence—an influence of a reflex char-

* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

acter—transmitted to it through the ciliary nerves, was as universally accepted. This view, which had been suggested by Mackenzie as an alternative but improbable explanation of the phenomena of sympathetic inflammation, and had been advanced previously by Tavignol, in 1845, was first brought prominently forward by Heinrich Müller, who published his conclusions—based on pathologico-anatomic observations—in 1858. His theory gained converts rapidly, and among those who accepted it, and who soon became its ardent advocates, were von Graefe, Donders, Arlt and Bowman. To them it seemed all sufficient, and through their labors it was fortified and strengthened. Numerous pathologic observations by Donders and many other competent observers, based on careful dissections of eyes enucleated because of sympathetic irritation or inflammation of the fellow-eye, and innumerable clinical facts were brought forward to sustain it, and, before long, it seemed if there was one question in ophthalmology settled beyond peradventure, that question was the genesis of sympathetic ophthalmitis. But time works many changes, and now, after the lapse of thirty years, it may be truthfully said, if there is one question in ophthalmology, seemingly, farthest from determination, and as to which least definite views are held, that question is the genesis of sympathetic ophthalmitis.

When pathology declared that an irritation transmitted through sensory nerves, or even through nerves containing sympathetic as well as sensory fibers, could not produce inflammation—could, at most, but cause vasomotor paralysis—and when it further told us that an inflammation such as occurs in a sympathetically affected eye must, almost of necessity, be the product, direct or indirect, of bacterial action, "something," to use a slang phrase, "had to give way," and that something, so far, at all events, as those were concerned who felt it incumbent on them to accept without question Pathology's dicta, was the doctrine of Heinrich Müller, of von Graefe, Donders and Bowman that sympathetic ophthalmitis was a neuropathic affection, and that the influence which brought it about was transmitted through the ciliary nerves.

And now it became the duty of the ophthalmologists who were pathologists as well, to construct a new theory of the origin of sympathetic ophthalmitis, which should take the place of the one that had been dethroned so unceremoniously. The first to undertake this task was Dr. Adolf Alt,[1] who, in a paper "On the Anatomical Causes and the Nature of Sympathetic Ophthalmia," argued in favor of the older view—the doctrine of Mackenzie—that the optic nerve furnishes the chief route by which the inflammation proceeds from the exciting to the sympathizing eye. His paper, which showed painstaking and laborious research, gave an account of the pathologic changes found in 112 eyes enucleated because of sympathetic disease of the fellow-eye; and his conclusion, in favor of the optic-nerve theory, was based mainly on the large percentage of pathologic changes in the retina and optic nerve, and the small percentage of changes in the ciliary nerves, which these eyes exhibited. His views attracted wide attention and gained many adherents. When, however, it was pointed out[2] that the "changes" in the retina and optic nerve, to which he attached so much significance, consisted in a large measure of detachment of the former and atrophy of the latter[3]—retinitis and neuritis being conspicuous by the infrequency of their mention—and, further, that in the whole series of 112 eyes there was but one instance (this single exception being a doubtful one, and probably due simply to the scantiness of the information supplied regarding it) in which it was not manifest that the uveal tract, as well as the optic nerve and retina, was the seat of pathologic changes, the inconclusive character of the evidence which he had brought forward, and its irrelevancy so far as the question of the etiology of sympathetic inflammation was concerned, became apparent; and, before long, his views received less consideration and his data were less frequently cited.

The next doctrine advanced, and the one still commonly in vogue, was that sympathetic ophthalmitis was a septic affection, and that it was caused by a hypothetical micro-organism, which traveled from the exciting to the sympathizing eye along the lymph spaces of the optic nerve. Leber and Snellen, in 1881, were among the first to advocate this view, a variant of which was suggested by Berlin, who thought it more probable that the infection of the second eye occurred through the general circulation, and, to account for the absence of pathologic manifestations in other organs, assumed for the hypothetical micro-organism a hypothetical affinity for the ocular tissues.

Schmidt-Rimpler later, in 1892, proposed a modification of Berlin's theory—which has the merit, it seems to me, of being less radically hypothetical—that the micro-organism, after reaching the second eye by way of the general circulation, attacked its tissues, rather than those of other organs, because they had been rendered less resistant in consequence of the congestion produced in them by the vasomotor reflex from the exciting eye, a view which had previously (1887) been advanced by Gifford.[4] The latest modification—for the rather fascinating cytotoxin idea of Brown Pusey[5] can not be classed under this head—of the germ theory, also first suggested by Gifford, but more formally put forth by Bellarminoff and Selenkowsky, is that it is the toxins produced by the bacteria in the exciting eye that pass over to the fellow-eye and cause the mischief with which we are all so familiar.

The experiments of Deutschmann, in which he endeavored to produce sympathetic ophthalmitis in rabbits by introducing into the eye a pyogenic micro-organism, attracted wide attention and, for a time, were regarded as affording strong evidence in favor of the germ theory of the disease; but, as is well known, Gifford, Randolph and others who repeated his experiments failed absolutely to confirm his results. Apart from this lack of confirmation, however, the result which he claimed to have obtained—an infection of the second eye as part of a general systemic infection, of which the rabbits soon died—was so wholly unlike true sympathetic ophthalmitis as we know it in man, that even had his experiments been confirmed at the hands of other investigators they really would have thrown little or no light on the etiology of the disease.

It is hardly necessary to point out that, although nearly a quarter of a century has elapsed since the germ

1. Archives of Ophthalmology and Otology, December, 1876.
2. "Some Recent Theories Regarding the Pathogeny of Sympathetic Ophthalmia, Viewed from a Macroscopic Standpoint." S. Theobald, Archives of Ophthal., vol. xiii, No. 1.
3. H. Müller had already expressed the view that an atrophied optic nerve "could hardly have the power of transmitting an irritation or any other process from the eye." Indeed, one of the arguments which he adduced in favor of his theory was that the ciliary nerves are less liable than the optic nerve to undergo atrophy.
4. Trans. International Med. Congress, 1887, vol. iii, p. 769.
5. Archives of Ophthal., vol. xxxii, No. 4, 1903.

theory of sympathetic ophthalmitis was first propounded, no positive evidence has been adduced to sustain it, and that to-day it must still be regarded as a mere hypothesis, resting on a far from substantial basis. As Gifford, one of its ablest supporters, has well expressed it[6]: "The most ardent advocates of the germ theory of the disease admit, on their part, that the nature of the germ which causes the disease, and the path which it takes in reaching the second eye, are as yet unknown. . . ." Not only is this true, but it is also true that only in rare instances have micro-organisms of any kind been found in eyes enucleated because of sympathetic disease of the fellow-eye.

But, beside this lack of positive evidence in favor of the view that sympathetic ophthalmitis is caused by a specific micro-organism, there are many clinical and pathologic facts which seem to weigh strongly against this doctrine. Among them may be mentioned the beginning of sympathetic inflammation so much oftener in the anterior than in the posterior structures of the eye; the extremely variable period of incubation of the disease; notwithstanding Alt's data to the contrary, its much more frequent occurrence as a result of injuries and disease of the iris and ciliary body than of affections of the retina and optic nerve; its development in consequence of non-penetrating wounds of the eye—burns of the cornea, for example[7]—and of loss of the eye from herpes zoster ophthalmicus (Noyes),[8] from non-traumatic iridocyclitis, etc.; and the well-established fact that enucleation of the exciting eye not very infrequently stops the progress of the disease in the sympathizing eye, a result which it would be difficult to explain if the mischief in this eye were really due to a micro-organism that had reached it, either by way of the lymph spaces of the optic nerves or through the general circulation.[9]

On the other hand, when we turn from the germ theory of sympathetic ophthalmitis to the discredited ciliary nerve theory—the theory which was so satisfying to those astute observers and logical reasoners who deserve to be, and always will be, looked back to as the founders of modern scientific ophthalmology—we no longer find discordance, but the completest harmony, it seems to me, between theory and observed facts. The absence of bacteria in the exciting eye; the variable period of incubation; the significance of disease and injuries involving the iris and ciliary body—those structures so richly supplied with sensory nerves, and inflammation of which almost always means intense suffering—the site at which the inflammation commonly begins in the sympathizing eye; the occurrence of sympathetic disease in consequence of non-penetrating injuries of the cornea, which, however, have given rise to painful and protracted keratitis; the arrest or favorable modification of the disease from enucleation of the primarily affected eye; its occasional development after enucleation of the exciting eye;[10] the long-continued existence of sympathetic irritation in some cases without the development of actual inflammation, and in others the occurrence of inflammation with but little precedent irritation—all these phenomena become explicable, are, indeed, but what the theory would lead us to expect.

It has been contended that if the ciliary nerve theory were true, sympathetic irritation should always lead to the development of sympathetic inflammation. Doubtless, if the opportunity were afforded, this is what, in the great majority of cases, would, sooner or later, happen; but as an argument against the theory this contention is as absurd as to insist that blepharitis marginalis can not be caused by strain of accommodation, because it is not present in every case of ametropia. As stated in my paper to which reference has already been made:

> That in some instances inflammatory changes occur in the second eye without sympathetic irritation, and that in others sympathetic irritation of the most marked character exists for a long time without inflammation, does not militate against the view that both of these conditions are dependent on a reflex influence transmitted through the ciliary nerves, as some would have us believe. In the first place, the ciliary nerves contain sympathetic as well as sensory fibers, and it is probable that the former have most to do with trophic changes, the latter with disturbances of sensation. In the second place, in view of the astonishing difference in the degree of pain inflicted in different persons by the same amount of violence done to the nerves, we are justified in assuming that in the eye, as well as in other parts of the body, these two kinds of fibers do not always exist in the same relative proportion, or, at least, that, in different individuals, sometimes the influence of one set, and sometimes the influence of the other, may predominate. Admitting this much, we shall have no difficulty in comprehending why a given lesion of the ciliary body, for example, should give rise, in one instance, to pronounced sympathetic irritation unaccompanied by structural changes; and, in another, to trophic changes in the sympathizing eye with little or no accompanying irritation.

The fact that, in some instances, sympathetic inflammation begins at the posterior pole of the eye, as a neuroretinitis or choroidoretinitis, has been regarded as being distinctly favorable to the theory that the disease is transmitted by way of the optic nerve or its lymph spaces; but, as I pointed out in my previous paper, this is only what the ciliary nerve doctrine would lead us to anticipate, since it is here, about the optic nerve, that the short ciliary nerves enter the eyeball, and the neighboring choroid coat—between the blood vessels of which and those of the papilla there is intimate anastomosis—is especially rich in its ciliary nerve supply.

Even the most uncompromising opponents of the doctrine that sympathetic *inflammation* is caused by a reflex irritation transmitted through the ciliary nerves, admit that the photophobia, lachrymation, incapacity for work, and, most significant of all, the vascular congestion, the vasomotor paralysis, which are the characteristic features of sympathetic *irritation,* are produced in this way; and the pathologists, who certainly can not claim that they have ever been able to reproduce experimentally a condition even approximately identical with that which exists when an eye sympathizes with its injured fellow, allow, on their part, that when the re-

6. Posey and Wright's Diseases of the Eye, Nose, Throat and Ear, p. 391.

7. I have met with one such case, where a severe and protracted keratitis was produced by the accidental instillation into the eye of aqua ammoniæ, and other cases have been observed.

8. Trans. Am. Ophthal. Soc., 1873, p. 71.

9. It must be admitted that this difficulty would not be so great as to either the bacterial toxin or the cytotoxin theory.

10. As to this phenomenon, I remarked in the paper already referred to: "It is quite unnecessary to adopt the progressive optic neuritis hypothesis in order to account for the origin of sympathetic inflammation . . . . after enucleation of the exciting eye; for it is altogether probable that the disturbances in nutrition in the second eye are preceded by and are dependent on molecular alterations (perhaps a slight myelitis, as suggested by Brecht) in the vasomotor or 'trophic' centers, and that these again are secondary to alterations of similar character in the gasserian and ophthalmic ganglia; so that we need only suppose that in exceptional instances these changes have progressed so far as not to be arrested by the enucleation of the eye, to obtain an entirely satisfactory explanation of the etiology of these anomalous cases."

flex congestion caused by irritation of sensory nerves lasts for a considerable time, as it does in a sympathetically affected eye, it places the cells of the part in a condition of instability, lowers the vitality of the capillary walls, and offers facilities for the emigration of leucocytes, so that on slight provocation inflammation may be precipitated. In a word, they admit that, solely through the influence of the ciliary nerves, we may have in the sympathizing eye a condition which is just short of actual inflammation.

At last, however, it would seem, the pathologists are willing to concede even more than this; to concede, in fact—if I rightly interpret the conclusions reached by Head and Campbell as a result of their carefully conducted investigations concerning the pathology of herpes zoster[11]—all that the advocates of the ciliary nerve theory of sympathetic ophthalmitis ever have claimed—that, without the intervention of bacteria or their products, inflammation may be set up in a distant part in consequence of an irritation of sensory nerves in relation with this part.

Among other conclusions drawn from their study of herpes zoster by Head and Campbell—and it should be remarked that their results have been widely accepted, and by pathologists of the highest distinction—are the following:

The eruption of herpes zoster is produced not "by disturbance of special trophic nerves, but by intense irritation of cells in the ganglion which normally subserve the function of pain. . . ."

There is no evidence that bacteria take part either in the ganglion lesion, which they describe as "an acute interstitial inflammation accompanied by necrosis of the ganglion cells," or in the secondary skin lesion, the contents of the vesicles whenever examined having been found sterile, or in the consequent inflammation of the lymphatic glands. "Thus," they comment as to the last-mentioned observation, "we are brought face to face with the curious fact that a collection of intensely inflamed vesicles containing a sterile fluid can be associated with enlargement of the lymphatic glands. Moreover, these glands have all the appearance of being inflamed, and yet show no sign of bacterial invasion."

Do not these concessions which, as yet, I believe, have not been controverted, dispose of the only serious objection which has ever been urged against the ciliary nerve theory of sympathetic ophthalmitis? If an "intense irritation" of ganglion cells "which normally subserve the function of pain" can produce, without bacterial or traumatic intervention, inflammatory changes in the skin areas supplied by the sensory nerves emanating from these cells, is there any reason why the "intense irritation" proceeding from an injured or diseased eye to its fellow may not, in like manner, produce inflammatory changes in it? Or, to put it more definitely, are we not warranted, reversing the sequence of events as described by Head and Campbell, in assuming that intense and long-continued irritation of sensory nerves, such as we have in a seriously injured and chronically inflamed eye, may cause inflammation in the ganglion cells with which these nerves are in relation, and that this, in turn, may bring about the inflammatory changes in the sympathizing eye? And this, as a glance at my previous paper will show,[2] is precisely the doctrine which I advocated twenty years ago, and which has always seemed to me more satisfying than any other that has yet been advanced in explanation of the genesis of sympathetic ophthalmitis.

I may add, in conclusion, that I have long held that sympathetic inflammation of the eye and herpes zoster ophthalmicus are related affections.[2] Indeed, in my lectures in the Johns Hopkins Medical School (and I have expressed the same views in published writings[12]), it has been my habit to lay stress on a group of diseases of the cornea and of the iris, which, for lack of a better name, I have spoken of as "trophic nerve" inflammations. In this group I have placed, besides sympathetic ophthalmitis and herpes zoster ophthalmicus, the keratitis which follows malarial fever, certain intractable forms of monocular keratitis and irido-keratitis, usually attended by anesthesia of the cornea, and of monocular plastic irido-choroiditis and, with less assurance, serious iritis or uveitis, which also, as is well known, is almost always limited to one eye.

These several "trophic nerve" affections which, it will be observed, are invariably unilateral, I have looked on as due to a common cause—disease of one or more of the ganglia in relation with the fifth nerve, oftenest, probably, of the ophthalmic ganglion, less often of the gasserian ganglion or of the central ganglia themselves. As the investigations of Head and Campbell seem to lend support to this teaching—which I realized was not in accord with the prevalent views regarding the genesis of inflammation—as well as to the ciliary nerve theory of sympathetic ophthalmitis for which I have so long contended, they have afforded me no little satisfaction.

11. Brain, vol. xxxiii, Part 3, 1900, pp. 353-395.

12. See article on "Iritis," contributed by me to the Reference Handbook of the Medical Sciences, first edition, vol. iv, p. 219, and second edition, vol. v, p. 218.

OPERATIVE PROCEDURE ON THE EXCITING AND THE SYMPATHIZING EYE IN CASES OF SYMPATHETIC OPHTHALMIA.*

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The object of this paper is to mention certain classes of conditions which are met with in eyes that produce, and in those that are affected by, sympathetic ophthalmia, as represented by the cases narrated, and to discuss briefly the treatment which seems to me to be indicated, trusting that the subject may meet with a full expression of opinion by the members of the Section.

1. Cases in which the exciting eye still preserves vision, the sympathizing eye being in the early stage of sympathetic ophthalmia. The following is a report of a case in point:

CASE 1.—E. B., aged 43, was admitted to the New York Eye and Ear Infirmary, Jan. 23, 1904. About Nov. 13, 1903, a piece of brick flew into his left eye. Three days later he went to a hospital in Brooklyn and was operated on. He says "there was pus in the eye and an ulcer which perforated." After being in the hospital five weeks he was discharged cured.

Examination.—Left eye, V = fingers at 4 feet. Conjunctiva injected; large macula in lower half of cornea, almost completely covering the pupillary area; remaining portion of cornea quite clear; iris adherent to cornea by a number of filiform shreds at lower portion; pupil not responsive to the stimulus of light, anterior chamber fairly deep; no ciliary tenderness; tension normal. Right eye, V = 20/30 +; conjunctiva injected; cornea clear; pupil dilates fairly regularly under atropin; anterior chamber clear and deep; no ciliary tenderness; three or four filiform posterior synechiæ.

* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

Diagnosis.—Sympathetic ophthalmia.

Treatment—Mixed treatment and salicylates internally; inunctions every second day; atropin. On account of the early stage of the sympathetic ophthalmia and the fairly good condition of the exciting eye, I thought it best not to remove that eye, as it might possibly eventually be the better of the two. Thinking that perhaps the anterior synechiæ existing in the exciting eye were instrumental in causing the sympathetic inflammation, I thought that an operation for the relief of the traction on the iris might favorably influence the inflammation of the sympathizing eye. I therefore performed iridectomy, using a keratome for making the incision and dividing the greater number of the anterior synechiæ with the point of the keratome. A large iridectomy was performed without accident. The eye healed kindly and quickly without inflammatory reaction, but the operative procedure had no appreciable effect on the course of the ophthalmia in the sympathizing eye, which was a relatively mild one, but which affected the entire vascular coat of the eye.

Result.—March 15, a little more than seven weeks after the beginning of treatment, the sympathizing eye is rapidly improving. The exciting eye shows but little evidence of inflammation and V = fingers at 5 feet. However, the coloboma following the iridectomy is partly filled in by plastic lymph.

I feel that the course pursued in the treatment of this case was perfectly justifiable, but, because of the tendency to closure of the coloboma with plastic exudation, which proceeded in this case without appreciable inflammatory reaction, I can not say that much was gained by the iridectomy. It is my opinion that the sympathetic inflammation would not have been more favorably influenced had the exciting eye been enucleated, and that all that we might reasonably expect has been accomplished in the treatment of the sympathizing eye. The condition of the latter will undoubtedly continue to improve.

2. Cases in which the sympathizing eye has become quiet, with almost complete posterior synechia, pupil occluded, vision perception of light, projection good, tension normal or slightly below normal, the exciting eye not a factor. To this class belong the following cases:

CASE 2.—James C., aged 12, came under my observation in May, 1892. Three years previously he received an injury in the left eye, producing a wound through the ciliary region. Six months later sympathetic ophthalmia of the plastic variety occurred in the fellow eye. During treatment for the condition the exciting eye was enucleated.

Examination.—When the patient came under my observation the sympathizing eye was quiet, the pupil was blocked by a pseudomembrane, there was extensive posterior synechiæ, iris changed in color, slightly opaque and presenting some radial folds. Atropin had no effect on the pupil, except at one small point, where slight dilatation occurred. Tension was very little below normal. Vision equaled perception of light. Projection good. Since the eye was apparently quiet, I was of the opinion that a greater degree of vision might be obtained by performing iridectomy.

Treatment.—The patient was admitted to the New York Eye and Ear Infirmary and a broad iridectomy performed under general anesthesia. It was found that the pigment layer of the iris remained adherent to the capsule of the lens from the pupillary margin, two millimeters toward the equator of the lens; the lens appeared to be transparent. The wound closed readily, but within six weeks the coloboma was filled in with a pseudomembrane, its formation being accompanied by slight injection of the ciliary zone of the ocular conjunctiva, resulting vision being no better than before the operation. A second attempt to obtain a coloboma was made some months later without success.

CASE 3.—Frank H., aged 42, thirty years ago was struck in the right eye with a ball, which evidently ruptured the globe, the injury occurring in the ciliary zone. At the present time the globe is shrunken, painless and sightless. Six months after the injury to the right eye, sympathetic ophthalmia affected the fellow eye. The sympathizing eye has been free from inflammation for many years.

Examination.—Globe of normal size; cornea clear; pupil occluded; complete posterior synechia; iris atrophic; anterior chamber about one-half normal depth; —T. ½; vision perception of light in all parts of the field; projection uncertain. The patient was admitted to the New York Eye and Ear Infirmary Oct. 6, 1902.

Treatment.—Thinking that it might be possible eventually to obtain a clear pupillary opening, I made a broad iridectomy upward and succeeded in removing the anterior layers of the iris only. The pigment layer remained adherent to the underlying tissues. The wound was then permitted to heal. Slight ciliary irritation followed the operation.

October 30, eye quiet; —T. ½; defect in iris somewhat narrowed by the deposition of plastic lymph. Jan. 3, 1903, patient was again admitted to the infirmary; tension of globe slightly below normal; eye free from inflammation. An attempt was now made to clear the pupillary area and the area of the coloboma of the opaque mass which occluded it. An incision through the cornea was made with a keratome and by means of a sharp cystotome, De Wecker's iris scissors and forceps, the pseudomembrane was removed and what remained of the lens (which was found to be shrunken and opaque) was expressed and removed by irrigation. A thin cyclitic membrane which stretched across the posterior surface of the lens capsule was recognized, but was not removed, as it was thought best to deal with it later.

Result.—The wound closed, but the healing process was accompanied by ciliary injection and some ciliary tenderness. The coloboma gradually filled with plastic exudate and the scar became slightly indrawn. Tension remained below normal and the vision did not become greater than perception of light. He was discharged Jan. 24, 1903. At that time I did not think that there was any prospect of improvement in vision by subsequent operation. Although I have not seen the patient since his discharge from the infirmary, I have recently learned that his vision is the same.

3. Cases in which cataract has formed in the sympathizing eye as a result of sympathetic inflammation; posterior synechiæ; eye quiet; projection good; the exciting eye not a factor. A case in point is the following:

CASE 4.—Charles S., aged 29, was admitted to the New York Eye and Ear Infirmary, Jan. 27, 1903. At the age of 12 he was injured in the left eye by the explosion of a firecracker. The eye became very much inflamed and the vision was reduced to perception of light. Five years later sympathetic ophthalmia of the right eye developed. Vision became reduced to perception of light. Six years after loss of vision in the sympathizing eye, an iridectomy was performed on this eye by Dr. Howe of Buffalo, in the hope of improving the vision, but without success.

Examination.—Right eye, conjunctiva normal. Cornea clear in its upper two-thirds. Slight opacity at both margins of the cornea just below the horizontal meridian, measuring 2 mm. in width and 2½ mm. in length—ribbon-shaped keratitis in the early stage of development. —T. The anterior chamber is about two-thirds the normal depth. The iris is atrophic and adherent to the capsule of the lens throughout about two-thirds of its extent. Two or three radiating slits in the iris in addition to a small coloboma upward and outward. The pupillary area is occupied by a thickened mass of pseudomembrane. The lens presents a yellowish-white appearance and is of normal size. Perception of light good in all parts of the field of vision. Left eye, the conditions are similar to those in the right eye, except that they are a little more pronounced. Vision equals perception of light, but the projection is faulty, particularly in the lower nasal portion of the field.

Treatment.—As the eye had been quiet for some years and the projection was good, I told the patient that there was a possibility of improving his vision by removing the lens, which was done on the afternoon of January 27. An incision was made with a Graefe knife at the limbus, making a small conjunctival flap. With a small, sharp cystotome, the capsule of the lens close to the margin of the iris below was cut through and the iris liberated in its upper half. A broad iridectomy was then made, after which capsule forceps were introduced and a large portion of the anterior capsule, including the pseudomembrane, drawn out. The lens, which was rather hard and presented calcareous deposits in its cortical layers, was then removed. It was somewhat adherent to the remaining capsule and its expulsion was difficult. However, it came away fairly satisfactorily, and irrigation of the anterior chamber with normal salt solution sufficed to remove almost every particle of lens substance without loss of vitreous.

Result.—Progress was favorable and without untoward symptoms until the third day after the operation, when a small hyphema was present, the blood being bright red in color, apparently coming from the iris. Four days after the operation the patient was able to count fingers at one or two feet.

February 26, V. = fingers at four feet, eye quiet. The coloboma is not so large as it was immediately after the operation. Aside from a slight opacification of the posterior capsule of the lens, there is no evidence of the formation of a cicatricial pupillary membrane. A faint reflex from the fundus can be obtained, but the vitreous humor does not appear to be perfectly transparent. — T. ½.

Six weeks after the first operation the posterior capsule was divided vertically by means of a narrow Graefe knife and a large, clear opening obtained, which has remained.

Feb. 27, 1904, more than one year after the operation, vision with a correction lens equals 20/40; tension a very little below normal. Patient reads ordinary type with facility.

An interesting feature in this case is the formation of "ribbon-shaped" keratitis, which develops only in eyes that are degenerating. Since the operations were performed, the keratitis has ceased to develop in the seeing eye, and the whole aspect of the eye has changed for the better.

4. Cases in which, with occluded pupil, total posterior synechia exists in the sympathizing eye. The tension is plus and increasing (secondary glaucoma); projection still good; the inflammatory process in a subacute stage, the exciting eye not now a factor. The problem is how to retain vision in such an eye.

CASE 5.—David J., aged 15, came to my office April 10, 1903. Eleven weeks before he had had an operation for the removal of cataract from the left eye, which was followed by iridocyclitis.

Examination.—When seen the left eyeball was soft and tender on pressure; the iris was caught in the angles of the wound, and the cicatrix corresponding with the incision for the removal of the lens was indrawn. V = perception of light. Right eye, incipient cataract, transient increase of tension. May 30: very slight iritis; early stage of sympathetic ophthalmia.

Treatment.—Removal of the exciting eye advised and strongly urged. The patient disappeared, but returned June 29 and consented to have the exciting eye removed, which was done at once. The sympathetic ophthalmia, which was then well advanced, was favorably influenced by removal of the exciting eye.

September 1, two months after the exciting eye was removed, the condition of the sympathizing eye was as follows: Complete posterior synechia; tension plus and increasing; ocular conjunctiva slightly injected; anterior chamber shallow; pupil blocked by pseudomembrane; V = perception of light; projection fairly good; field perhaps a little narrowed.

Here was an eye in the last stage of sympathetic ophthalmia, with secondary glaucoma, about to become blind by increase in pressure. The anterior segment of the globe had apparently suffered most from the sympathetic ophthalmia. The question to decide was whether we should endeavor to save the vision by operative procedure for the purpose of relieving the tension. If operation was decided on, what operation should be performed?

A broad iridectomy was done and the lens removed.

Result.—The inflammatory process affecting the eye was not accelerated, but did not abate. The coloboma was slowly filled with plastic exudation and, by subsequent contraction of the exudation, was abolished. The scar became slightly sunken. Tension minus. Vision equaled perception of light. Eye slightly painful.

May 28, 1904, globe atrophic; no perception of light.

In view of what has preceded, it must be admitted that the tendency to plastic exudation in the exciting and in the sympathizing eye in sympathetic ophthalmia is very great, even after the actual inflammatory stage has passed; that it is sufficient to destroy the immediate results of operations on the iris if any degree of inflammation still exists. If increased tension does not exist, operation is not justifiable until all traces of inflammation have passed and even then the result will be uncertain.

If tension is increased and blindness sure to follow if this is not relieved, operation, however small the chances for success, should, in my opinion, be undertaken.

DISCUSSION

ON PAPERS OF DRS. VEASEY, THEOBALD AND WEEKS.

DR. LEARTUS CONNOR, Detroit, said that, while Dr. Theobald states that the ciliary route is the mode of communication from one eye to the other, other observers emphasize the other routes, such as the lymphatics, optic nerve, and blood vessels. Dr. Connor believes that probably all these routes are involved in many, if not all, of these cases. The ciliary theory assumes that it is a local irritation and in every case of sympathetic ophthalmia the ciliary body is involved. In that body there are not only ciliary nerves, blood vessels, and lymphatics, but also muscular tissue. It may be that changes in muscular metabolism will explain why, after ten or twenty years, other obscure phenomena of sympathetic ophthalmia may occur. Unfortunately, the evidence that bacteria are the sole cause is not conclusive. It may be that finer methods of research will throw more light on the subject. Study of toxins teaches that, directly or indirectly, they may produce the trouble. The history of sympathetic ophthalmia illustrates the evolution of great discoveries in medicine.

DR. C. H. WILLIAMS, Boston, stated that, whatever may be the cause of the condition, physicians are most concerned with the treatment. He referred to the case of a woman, about 30, who had severe uveitis in one eye, which later developed in the other, apparently from sympathetic action. It went on so badly in that eye that it had to be enucleated. Last fall she had a return of this uveitis in the first eye, and Dr. Williams tried everything that had been recommended—salicylates up to 1 gr. to the pound of weight, mercurials and all that. She had 4/10 vision when he first saw her, which gradually went down to fingers at fifteen feet. His brother, Dr. Francis Williams, had just returned from Paris with some pure radium bromid and they tried the radiations from that. They used the pure radium bromid, at first three times a week, then twice and then once, held within a quarter of an inch of the eye in one-minute periods with a rest between. The result was that the ciliary congestion lessened and the interstitial keratitis subsided and she now has a vision of 5/10 in that eye. One case does not show very much, but it at least illustrates this point: An eye can be exposed to the radiations of pure radium bromid without doing any harm, provided it is done with care.

DR. G. C. SAVAGE, Nashville, stated that he does not believe in the ciliary irritation theory. He has had two cases occur

after the exciting eye had been enucleated. If that theory were true it would be correct to tell patients that when the exciting eye is removed they are in no danger whatever of sympathetic ophthalmia, for the moment the eye is removed the danger is past. He does not believe that it is a toxin either, and yet he has not any very good reason for that belief. He believes that the migration theory is the true theory, and he will continue to believe it until some one demonstrates that it is not correct. If it is the correct theory, how long does it take the germs to travel through the lymph channels from one eye to the other? When he first accepted the germ theory he was taught to believe it would take about six weeks. In the last few years he had a case that occurred four weeks after the original lesion, so that if he holds to the germ theory he must believe that some germs can travel this course in from three to four weeks. Now, the exciting eye, if it is useless, should be removed, the sooner the better; and its removal should never be delayed beyond from four to six weeks without the patient taking the responsibility, because a delay beyond that time may be attended by migration of the germs and loss of the other eye. If the patient will not consent, let him take the responsibility; there will not be a moment when he will not be in danger. Then, too, he never says to a patient, or to his friends, that when the exciting eye is removed the other eye is absolutely free from danger. Dr. Savage has had two well-marked cases of sympathetic ophthalmia occur after enucleation of the exciting eye. He believes that at any time within from four to six weeks after enucleation of the exciting eye sympathetic trouble in the other eye may occur, the germs having commenced their journey before the enucleation. Later than this he would expect no sympathetic trouble.

DR. EDWARD JACKSON, Denver, said that the suggestion made in the *Archives of Ophthalmology* a year ago by Brown Pusey should not be passed over without something more than mere mention. The suggestion was based on the experiment of producing degeneration in one kidney by ligation of the vessels and ureter and which is followed by degeneration in the cells of the other kidney, something that does not occur when the first kidney is removed. When the kidney undergoing degeneration is retained in the body the cells develop some substance capable of causing degeneration in kidney cells elsewhere in the body. This seems to Dr. Jackson very suggestive in regard to sympathetic ophthalmia, and he thinks Pusey's suggestion worthy of careful consideration. Both of Dr. Veasey's cases recovered on salicylates, but after enucleation of the exciting eye. The operations in one of Dr. Weeks' cases failed to influence the course of the disease, the exciting eye being retained. The statistics show different prognoses after removal of the exciting eye. Of course, where both eyes are injured the decision as to what should be done is a difficult one. The retention of the eye may have significance from many points of view, but it is a practical point on which there is a good deal of evidence that it is dangerous to retain a damaged eye. In Dr. Weeks' most successful case, where he extracted the lens and got good vision, he speaks of using irrigation with the extraction of the lens. Within the past year Browne and Stevenson of Liverpool have used prolonged irrigation with good results.

DR. T. Y. SUTPHEN, Newark, N. J., stated that several years ago he brought to the notice of the American Ophthalmological Society the usefulness, in his experience, of salicylate of soda in secondary glaucoma. Since that time he has found it to be of great value in deep inflammations of the eye, not glaucomatous, whether the tension is increased or not. He is not surprised to find it of value in sympathetic ophthalmia. In support of the theory that the case of sympathetic ophthalmia reported may be due to irritation at the end of the optic nerve, he referred to a case, which he reported several years ago, in which sympathetic neuritis developed in the fellow eye three weeks after enucleation. Strong adhesions had formed between the stump and the under surface of the upper eyelid, which caused a pulling on the end of the nerve at every movement of the other eye. Recovery was prompt after these bands of adhesions were severed. The traumatism necessitating enucleation had been a wound of the upper lid and globe by a piece of blank cartridge.

DR. J. L. THOMPSON, Indianapolis, declared that very few men could take the bold stand Dr. Theobald takes in the matter. Dr. Thompson had a case in which the germs must have been twenty-five years traveling around. One case had calcareous degeneration occur and sympathetic ophthalmia was set up twenty-five years after.

DR. S. C. AYRES, Cincinnati, related a case relative to the subject of Dr. Weeks' paper. A young man, 20 years of age, came to him about eight years after the injury. The injured eye was shrunken and in the other there was a well-developed cataract. Dr. Ayres made an iridectomy and did an extraction. This was followed by exudate, and he did another iridectomy downward and incised the capsule. Then he made a V-shaped incision with De Wecker scissors and got a good open space with very good vision. That is one of the rare cases where sympathetic inflammation is followed by cataract and good vision obtained by an operation. In another case a man had an eye injured from a blow. The sympathetic eye and the other one were about equally imperfect. In course of time the sympathetic eye became blind and the injured eye regained good vision. That is an argument in favor of delay in operating. If the injured eye had been enucleated the man would have been entirely blind.

DR. ROBERT L. RANDOLPH, Baltimore, stated that during a long working experience in the pathologic laboratory of the Johns Hopkins University he has utilized numbers of the lower animals for the purpose of producing experimentally what is known as sympathetic ophthalmia and he has never seen in the second eye anything which was in the slightest degree suggestive of a sympathetic inflammation. He has frequently been asked by other workers in the laboratory to examine eyes of animals which had been used for other kinds of experiments; these animals showed eye symptoms, but in no case was the trouble anything more than either a conjunctivitis or keratitis, both of which diseases are, as we know, quite common among dogs and rabbits, especially when several are confined in close quarters. He has gradually reached the conclusion that the lower animals, certainly horses, dogs, rabbits and cats, do not have sympathetic ophthalmia, and he believes that all attempts to produce sympathetic ophthalmia experimentally will result in failure.

DR. CLARENCE A. VEASEY, Philadelphia, said that he trusted that the members present did not understand that his prognosis as to the ultimate result in the sympathetic eye of the second case was favorable. It was decidedly unfavorable. On the other hand, he is quite sure that a number of his Philadelphia confrères can recall the case exhibited before the College of Physicians by Dr. Zimmerman some years ago in which a large piece of brass had remained behind the lens fifteen years without producing any inflammatory symptoms. This also agrees with the statements of Leber on this subject. The point he wanted especially to make was that the disease in the second case was true sympathetic ophthalmia and that the condition was relieved by the use of large doses of salicylate of sodium. It has been the custom of Philadelphia oculists to employ the salicylates for many years in diseases of the uveal tracts other than those due to sympathetic trouble. Dr. Veasey got the idea from his friend and former teacher, Dr. de Schweinitz, and thinks that he received it from his former teacher, Dr. Wm. F. Norris, so that it dates back many years. The method is to give 80 gr. during the first twenty-four hours, 60 gr. during the second, and 40 gr. during the third twenty-four hours in most of the diseases of the uveal tract. In sympathetic ophthalmia, however, it is given in much larger doses, according to the body weight. Dr. Jackson says both cases recovered after removal of the exciting eye, but it should be noted

that the patients did not recover until after the use of the large doses of salicylates.

DR. JOHN E. WEEKS said that he should not think of saving the eye unless the chances or possibilities were that the vision in the exciting eye might finally be the better of the two. When an eye is attacked with sympathetic ophthalmia, one can not predict that the eye will recover with useful vision. In the cases that he reported, the resulting vision in the sympathizing eye is good to-day. In the cases of cataract following sympathetic ophthalmia, the exciting eye was not removed because he did not think it was in any way a factor at that time. It has not been his experience that removal of the exciting eye always stops the sympathetic process; in some cases it has no effect whatever. In regard to the third case, where cataract was removed, he remarked on a peculiar condition that was present as evidence of degeneration, namely, ribbon-shaped keratitis. The commencement of ribbon-shaped keratitis is an evidence of degeneration of the affected eye. This process ceased in the eye in which the operation was done. A year has elapsed. There has been an improvement in the condition of that eye and apparently a recession of the keratitis.

DR. SAMUEL THEOBALD, Baltimore, stated that he discussed the value of the cytotoxin theory with Dr. Welch of the Johns Hopkins Hospital, and he thought that the knowledge regarding cytotoxins was not definite enough to warrant the establishment of such a theory. In Dr. Veasey's case, where both eyes were badly injured, and he regarded the trouble as sympathetic, it seems to Dr. Theobald not improbable that the supposedly sympathetic inflammation was really due to the injury. The fact that sodium salicylate acted favorably would have no bearing on the question of etiology. As to the disturbing effect of sodium salicylate on the stomach, some of the members, perhaps, have not had occasion to note how very favorably the essence of pepsin acts in this regard when given in connection with the sodium salicylate. For some years he has given from 1 to 2 drams of essence of pepsin with each dose of the sodium salt, and with the happiest effect.

FIFTY CONSECUTIVE CASES OF PNEUMONIA WITHOUT A DEATH.

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In reporting the results of my method of treating pneumonia I wish to thank my many colleagues for the interest they have manifested in criticizing my article that appeared in THE JOURNAL, July 9, 1904, and to Drs. W. P. Haney, T. F. Butzow and T. R. McNab, my assistants. I am especially indebted for their untiring efforts to prove or to disprove the value of quinin and iron as I recommended them in pneumonia.

I believe pneumonia to be a septic, febrile disease, characterized, according to our present knowledge, primarily, by a severe lung inflammation and frequently by great cardiac weakness, which often causes death.

The present knowledge of the etiology (excepting exposure to wet, cold and alcohol) and pathology is somewhat limited, and I question the propriety of basing our management on the principles of theory alone. I am inclined to believe that an invasion of a combination of micro-organisms, or their products, are etiologic factors in pneumonia. However, there remains a doubt in my mind if there are not tissue changes elsewhere in the body that precede the active involvement of the lungs.

The fact that I have been able to detect in several cases tenderness and pain, from a mild to a severe degree, in the region of the gall bladder during the first stage of the disease, has strengthened my theory of primary gall bladder invasion. In those cases that are preceded by liver pain and bilious vomiting, troublesome tympanites invariably follow: What relation, if any, these preliminary symptoms have to pneumonia, and the factors that produce these symptoms, are difficult, or impossible, to explain.

I doubt if any disease has occasioned more discussion concerning its etiology and treatment than pneumonia, and, moreover, he who advocates a departure from a measure that is not based on some etiologic or pathologic finding is more formidable in the eyes of the profession than any medical measures he may present.

While differing from nearly every writer on pneumonia, I do not wish it understood that I look on their efforts as unavailing, as no disease presents more individual suggestions from a symptomatic standpoint, or necessitates more active attention. As my exceptions of the present consideration of pneumonia are based on my own experience, I feel at liberty to frankly express these views.

To those who believe my success is due to a modified form of pneumonia, or a malarial infection, I wish to state that I have never experienced more desperate cases in my life, as the report of the following cases, which are fair examples of the pneumonia we have in this section of the Southwest, will confirm. So far as malarial influence is concerned, I have never seen a case of malarial infection during my residence in this locality.

Dr. J. B. Showalter of Butler, Pa., was a frequent visitor to the bedside of Case 1 during the fifth, sixth and seventh days of the patient's illness.

CASE 1.—L. M., aged 34; single; Mexican; occupation, mine laborer.

History.—He was taken ill on the evening of Oct. 31, 1904, and was admitted to hospital November 1, at 11 a. m. The alleged cause of disability was exposure, due to change of clothing in a cold room after coming from the overheated mine.

Examination.—Axillary temperature 105.2; pulse, 110; respiration, 36, and somewhat labored; severe pain in left chest extending to left shoulder posteriorly; also pain and tenderness in the region of the gall bladder, with nausea, and vomiting of about six ounces of bilious matter.

Diagnosis.—Pneumonia involving the upper lobe of the left lung. Unusual depression was noticed in this case, which was greatly aggravated by almost constant coughing, and during the frequent paroxysms cyanosis was very much in evidence.

Treatment.—Forty-five grains of quinin were administered at 12 m. and 30 grains more were given at 1 p. m. At 5 p. m. his temperature was 104; pulse, 100; respiration, 32, at which time 20 grains more of quinin were given. Temperature, 7 p. m., 103.8; pulse, 98, full and strong; respiration, 30; 15 minims of the tincture of chlorid of iron was ordered every three hours.

November 2: 7 a. m., temperature, 103.8; pulse, 100; respiration, 30; iron continued. 12 m., temperature, 104; pulse, 100; respiration, 30; pain in left side somewhat relieved; 40 grains of quinin administered. 4 p. m., temperature, 102; pulse, 100; respiration, 36; patient very restless; sputum remaining clear; stomach rebellious and patient vomited about four ounces of bilious matter and milk about 7 p. m. Iron continued.

November 3: 7 a. m., temperature, 103; pulse, 98; sputum slightly streaked with blood. 4 p. m., temperature, 103.6; pulse, 100; respiration, 34.

November 4: 8 a. m., temperature, 103; pulse, 90; respiration, 32; profuse prune juice expectoration. 12 m., temperature, 104; pulse, 100; respiration, 30; entire lung and

right lower lobe involved; 45 grains of quinin administered. 8 p. m., temperature, 103; pulse, 100; respiration, 34; iron continued.

November 5: 7 a. m., temperature, 103; pulse, 104; respiration, 40; slightly delirious. 12 m., temperature, 104.6; pulse, 108; respiration, 40; complaining of pain in the region of right lower lobe. 5 p. m., temperature, 103; pulse, 100; respiration, 38, and of good character; complains of but little pain. Twenty-five grains of quinin were administered, which he immediately vomited. Twenty-five more were given 30 minutes later and were retained. Iron increased to 20 minims every 2 hours. 10 p. m., temperature, 101; pulse, 96; respiration, 30; demanding more nourishment.

November 6: 7 a. m., temperature, 100.4; pulse, 90; respiration, 24; 15 minims of iron ordered every 4 hours. 8 p. m., temperature, 101; pulse, 92; respiration, 32; slightly nervous; 30 grains of bromid and 10 of chloral ordered.

November 7: 8 a. m., temperature, 99; pulse, 88; respiration, 22; complains of being hungry and insists on being bolstered up in bed to eat his mush, poached eggs and milk toast. Evening temperature, pulse and respiration practically normal.

November 10: Advice from the patient states that he is practically well.

CASE 2.—J. M.; Mexican; aged 38; laborer; occupation, miner.

History.—He was taken ill July 5, and admitted to hospital July 9, after occupying a tent for four days where the rain almost constantly beat on him, and with practically no attention. His condition when admitted to the hospital was as follows:

Examination.—July 9: Axillary temperature, 106.4; pulse, 140, very weak and soft; respiration, 60; very cyanotic and semi-unconscious, and with a most distressing expiratory grunt. Extremities were cold and clammy, and it certainly looked as if he would die in a very few hours.

Treatment.—With difficulty he was aroused and 75 grains of quinin were administered. In one hour later 40 grains more were administered. At 5 p. m., two hours after the first dose of quinin was given, his temperature was 105.2; pulse, 122; respiration, 48; at which time he began to show a rational condition. Twenty minims of tincture of iron were ordered every hour for three doses. At 8 p. m. 40 grains more of quinin were given, with the result that at 8 a. m. the next morning, July 10, his temperature was 102.2; pulse, 110; respiration, 24; practically free from pain; very little expectoration, which was slightly prune juice in color. The patient was discharged from the hospital July 17, practically well.

CASE 3.—The following case was treated by one of my assistants, Dr. W. P. Haney.

History.—Mrs. M., aged 24; Mexican; weight, over 200 pounds; mother of two children; was taken ill Oct. 1, 1904. Slight chill about 10 a. m., followed with frontal headache; pain in the eyeballs and in the muscles and bones of the thighs and lumbar region; temperature, 104.6.

Diagnosis.—La grippe. A calomel purge, followed by Dover's poowder and salicylate of soda, was ordered.

October 2: 10 a. m., temperature, 103; pulse, 140; respiration, 26; salicylate of soda and salol ordered. During the day of October 2 she complained of but little pain in her bones and muscles, and at 8 p. m. she was fairly comfortable.

October 3: 11 a. m., the patient was seized with a chill, followed by severe pain in the region of the right lung, lower lobe, with extreme tenderness in the region of the gall bladder. Dyspnea was marked; temperature, 105.8; pulse, 120. All the physical signs of pneumonia were present, including profuse bloody expectoration. A diagnosis was made of pneumonia, right side, complicating grippe.

Treatment.—Fifty grains of quinin were administered at once, followed in one hour by 30 grains more; 15 minims tincture of iron were ordered at 10 p. m., to be repeated every two hours.

October 4: 8 a. m., temperature, 103; pulse, 102; respiration, 26; 35 grains of quinin were administered at 9 a. m., followed in one hour by 20 grains more; iron continued. At 9 p. m. the third complication was discovered by her aborting, at about the sixth or seventh week. Notwithstanding the serious complications, she was discharged October 7, practically well. I doubt if quinin had as much to do with this patient aborting as the high temperature, as my experience has been that women frequently abort from la grippe when the temperature reaches 105 or over.

CASE 4.—J. D., aged 38; Mexican; miner; was taken ill September 30; Dr. Haney first saw him October 2, 4 p. m.

Examination.—Axillary temperature, 105.8; pulse, 128; respiration, 56; profuse prune juice expectoration; pain in both sides of chest, severe in right side.

Diagnosis.—Double pneumonia.

Treatment.—Fifty grains of quinin were given at 4:15 p. m., followed by 30 grains more at 5:15 p. m.; 15 minims of iron were ordered every two hours. The patient was admitted to hospital the following morning, October 3, 10 a. m. Temperature, 102.2; pulse, 102; respiration, 34. Thirty-five grains of quinin were given at 11 a. m.; iron, 15 minims, every three hours.

October 4: Temperature and pulse were practically normal and remained so; he was discharged October 8, well.

A careful review of the above cases will show that in one hour or one hour and fifteen minutes after administering quinin the condition of the patient was improved. While improvement at this early period of the disease is gratifying, it is no comparison to the results achieved by the treatment in preventing the dangerous symptoms of cardiac failure, commonly called crisis. No selection of cases has been made for the purpose of this record, as I hastily took a synopsis of these few cases on the date of my departure for the United States.

Case 2 may be looked on as a lucky one, but it will take a great amount of evidence to convince me that the treatment did not save his life.

I have proved that quinin will not depress the heart in any stage of pneumonia; on the contrary, it is the most reliable stimulant, and produces the effect that we have so often looked for in strychnin and alcohol. Quinin, as I administer it, will not only reduce the frequency of the heart, but will increase its volume and the peripheral circulation as well. Again, to prove its indications, I have but to state that not in a single instance, where large doses have been administered during the active stages of the disease, has cinchonism been observed; in fact, not an unfavorable symptom has been recorded. That iron is a principal factor in maintaining the strength of the heart, as well as in acting as an antiseptic, there can hardly be a doubt.

I maintain that our principal efforts should be directed to applying measures that will fortify the heart and destroy the products of organisms that produce sepsis.

In quite a number of recent cases I have noticed that the rusty sputum has been delayed until the third or fourth day of the disease, and continues only one or two days, probably due to a mixed infection or the treatment.

Just what the blood count will show after the administration of large doses of quinin and iron in pneumonia is speculative on my part, but I venture to say a favorable report will be made.

The fact that many of the older practitioners claim to have given quinin in big doses, not alone in pneumonia but in nearly every inflammatory disease, does not interfere with my unique method of treatment.

that is based on clinical observation and specific conditions for its administration.

To enumerate the diseases that have been treated by large doses of quinin would be as difficult a task as it would be to recite the authorities on its use since its discovery by Dr. Duncan of Edinburgh in 1803.

The record of Case 2 shows that 115 grains of quinin were given the patient within one hour after his arrival at the hospital. This may impress many as an aggressive measure, but, regardless of any impression of this character, I believe the future will record many larger doses. Experience will, no doubt, demonstrate that the timid practitioner will reserve the application of this method as a substitute for strychnin and alcohol, which are so frequently administered during the excitement prior to dissolution.

I strongly maintain that the use of stimulants, alcohol and strychnin, prior to the stage of resolution, is a dangerous practice, as it increases the mechanical conditions that are distressing the patient instead of strengthening the disabled heart.

I find that bromid of lithium in combination with chloral controls the nervousness and delirium which is probably produced by toxemia, much better than does morphin, as the latter given in sufficient quantity to alleviate these conditions not only embarrasses respiration, but interferes with the secretions.

It would not be surprising if the near future revealed some interesting knowledge concerning the incubation period.

The absence of complications, with one exception, in the last 50 cases, has possibly been influenced by the treatment. I do not feel justified, however, in making any positive claims of this character on so limited a number of cases.

I have discarded all external applications, and dress my patients with as light-weight clothing as possible. Expectorants, excepting as a vehicle, are seldom used. A liquid diet, with plenty of plain alkaline drinking water, is advisable. The syrup of glycyrrhiza and yerba santa is an excellent agent in which to suspend quinin, and also acts as a pleasant cathartic. Carbonated waters and solid food should be avoided prior to beginning resolution, as any distension of the stomach will not only interfere with respiration, but will embarrass the heart action.

We have been taught that it is impossible to modify or to shorten the duration of this disease; but must we go on indefinitely and accept such an ultimatum, or should we, on our own responsibility, lend efforts that will secure more practical results?

To associate therapeutics with the expectant plan of treatment is objectionable on account of the lack of any specific agent; watching and waiting and expecting Nature to cure so formidable a disease as pneumonia does not impress me as rational or modern medicine.

In the 50 cases responsible for this article, the ages ranged from 7 to 56 years. In nearly 80 per cent. the right lung was attacked, principally the lower lobe.

The most prominent feature that recommends my treatment of pneumonia is the practical absence of cardiac depression and the early resolution that invariably follows. Broken or small doses of quinin and iron will not produce satisfactory results.

The 50 consecutive cases of pneumonia that I have now treated without a death were diagnosed in every instance by thorough examination.

The administration of quinin during the stage of resolution must be carefully watched, as small doses of from 5 to 10 grains will frequently produce cinchonism.

THE MOST ANCIENT MEDICAL PRACTICE LAWS.

THE CODE OF HAMMURABI, 2200 B. C.

BAYARD HOLMES, M.D.
CHICAGO.

It has long been known that there was a celebrated lawgiver in the valley of the Euphrates called Hammurabi or Amraphel.[1] He was king of Babylon, and his rule extended over the whole of Mesopotamia from the mouths of the Tigris and Euphrates to the Mediterranean coast. There are frequent references to the code of Hammurabi in the Chaldean and Assyrian writers, and a few of his laws have been more or less perfectly known for half a century. He is supposed to have lived between 2885 and 2242 B. C., or about the time of Abraham.

Every physician will have a certain interest in knowing that nine of the 282 laws of Hammurabi refer to surgeons. These laws were discovered written on a monument of stone, eight feet high. It was found at Susa, Persia, in January, 1902, and in October of the same year a superb reproduction and translation of this oldest code of laws was published by the French government. The medical reader will be interested in the translation made by C. H. W. Johns and published in Edinburgh in 1903, or if he be more of an archeologist he will be delighted with the magnificent transliteration and translation by Robert F. Harper and published by the University of Chicago. It is worth while here to reproduce the nine paragraphs referring to medicine.:

215. If a doctor has treated a rich man for a severe wound and used a bronze lancet, and has cured the man, or if he has opened the eye of a rich man with the bronze lancet and has cured the eye of the rich man, he shall receive ten shekels of silver.

216. If the patient be the son of a poor man, he shall take five shekels of silver.

217. If he be a gentleman's servant, the master of the servant shall give two shekels of silver to the doctor.

218. If the doctor has treated a rich man for a severe wound with a lancet of bronze and has caused the rich man to die, or if he has opened an abscess of the eye of a rich man with a bronze lancet and has caused the loss of the rich man's eye, one of his hands shall be cut off.

219. If a doctor has treated the severe wound of a slave of a poor man with a bronze lancet and has caused his death, he shall render slave for slave.

220. If he has opened the abscess of a slave with a bronze lancet and has made him lose his eye, he shall pay half the slave's price in money.

221. If a doctor has cured the shattered limb of a gentleman, or has cured the diseased bowel, the patient shall give five shekels of silver to the doctor.

222. If the patient is a poor man, he shall give three shekels of silver.

223. If he is the servant of a gentleman, the master of the slave shall give two shekels of silver to the doctor.

It appears from these laws that the physician and surgeon occupied a distinct social position in the ancient Assyrian society, and that even in those remote periods the surgeon was considered worthy of compensation. He received from the rich man a larger fee than from the poor man. He evidently made a good living, because he is supposed to have a slave to render for a slave and the money to pay for half the value of a slave in case a slave should lose his eye at the surgeon's hand. We may believe that in those remote days the abdomen was occasionally opened, because the fee for treating the sick bowel of the gentleman is distinctly mentioned, but no penalty is given outside of the general one in paragraph 218 for a failure to cure.

In the succeeding paragraphs of this code the veterinary is

1. Genesis, xiv, 1.

mentioned, and he receives compensation in a much smaller degree for his services, and he is obliged also to suffer when he fails to cure.

In the preceding paragraph of the code, 209, an interesting law is promulgated: "If a man has struck the daughter of a gentleman and has caused her to miscarry, he shall pay ten shekels of silver for the miscarriage." It will be noticed that this is the price of a capital operation on a rich man.

Taking the code all in all, one is compelled to look on the civilization of the Euphrates 4,000 years ago as marvelously similar to our own except possibly for its lack of bookish culture. The view of life which is given in the code is imperfect, but many outlines of that civilization are sketched in a master hand. They had means of transportation, common carriers and public servants, who were under more obligation and stricter rules and regulations than private individuals. They had storehouses, commission merchants, money lenders and borrowers of money and renters of real estate, and in many respects their laws in relation to these economic factors were more humane, equitable and reasonable than our own.

At this particular juncture one might ask if the commission business existed among physicians and surgeons in the valley of the Euphrates. But on this point the code is silent. If the man with the bronze lancet had runners out, either in the guise of female booksellers and male peddlers of patent preventatives, or commission men practicing among the Elamites or in the suburbs of Babylon, no cases of the kind ever came to adjudication and monumental inscription in the market place of Susa.

A number of laws are devoted to the relations of man and wife, to fidelity and infidelity between them, and to other sexual and household economic affairs. They form a very considerable part of the code, paragraphs 129-184 inclusive. Noticing an abstract in THE JOURNAL, November 12, page 1485, in which Baudouin is said to be awaiting with interest the article yet to be written on the husband of the medical woman, I wish to recall the fact that a matter of this sort was recognized by the code of Hammurabi, and that several paragraphs were necessary to regulate the conflicting relations of such a husband and wife. In paragraph 144 is the first mention of the relations of such a husband to such a wife, namely: "If a man has espoused a votary and that votary has given a maid to her husband, and she has brought up children, and that man has set his face to take another wife, one shall not countenance that man; he shall not take another wife." Paragraph 145: "If a man has espoused a votary and she has not granted him children, and he has set his face to take another wife, that man shall take another wife; he shall cause her to enter into his house. That other wife he shall not put on an equality with his wife." In two succeeding paragraphs it denies the woman the privilege of selling such a maid who has borne children to her husband, but allows her to sell one who has not borne children.

If it were possible, if by any means it could be brought about, the attention of the conferences, dioceses and houses of bishops ought to be called to these paragraphs of the code, 129-184, and carefully considered in their bearing on the prevention of marriage of either party after divorce or the prevention of divorce itself.

Physicians as Statesmen.—The medical profession is fairly well represented in the Canadian Senate as well as in the Canadian House of Commons. According to the *British Medical Journal*, there are nine physicians in the former and fifteen in the latter body. France is still the country where medical men are most prominent in politics; in the Senate there are thirty-nine, and in the Chamber of Deputies fifty-one. Many of them, however, like M. Combes, M. Clemenceau, and M. de Lanessan, are politicians first and physicians only to the extent of holding a diploma. The *Lancet* states that in the Italian parliament, which was recently elected and is now in session, there are twenty-two medical deputies, representing wards in eighteen provinces of Italy. The list includes several well-known names, such as Baccelli and Santini for Rome, Celli for Cagli, Sanarelli for Bibbieno, and Rummo for Benevento.

Special Article.

IMMUNITY.

CHAPTER I.

PARASITISM, INFECTIOUSNESS, CONTAGIOUSNESS.

Parasitism.

Parasitism is the condition in which a plant, or an animal being, lives on or within another living organism. A true parasite always derives its sustenance from the tissues of its host.

Some parasites may live on a host without causing appreciable damage, that is, they are non-pathogenic parasites. In this case they may derive their nutrition from some of the excreted non-living products of the host, living as pure saprophytes,[1] or the amount of nutritious substance which they obtain from the host may be so little that the health of the latter is not impaired.

There is another large class of organisms, however, which under the proper conditions cause severe diseases in the host. For example, there are many pathogenic microbes which live in and on the skin without doing harm, but if certain ones reach the deeper tissues, they may institute pathologic processes. Any organism which is able to cause pathologic tissue changes or to set up abnormal symptoms is classed as a pathogenic parasite. The abnormal processes which they set up are our infectious diseases.

Infectious Disease.

An infectious disease is one which is caused by living organisms which have in some way been introduced into the tissues of the body. Accordingly the word has reference to the nature of the cause of the disease. It is from the Latin *inficire*, meaning to place in or into.

Infestation and Infection.

Where living organisms exist on a body surface, as the skin or intestinal tract, the surface is said to be infested; the skin, for example, is infested with pediculi. One may also say that the intestinal tract is infested with tape worms, but here the distinction between infestation and infection is not to be drawn so sharply; surely when the larvæ penetrate the intestinal wall and reach the circulation or distant organs we must speak of infection. But even the adult tenia as it exists in the intestines may cause erosions of the mucous membrane or may perhaps burrow a slight distance into the wall, a condition which approximates the action of the larvæ in passing through the wall; accordingly at some point the distinction between infestation and infection would have to be an arbitrary one. It is more convenient to confine one's self to the word infection.

Contagiousness and Infectiousness.

Confusion sometimes arises in using the words infectious and contagious. A contagious disease is one which may be transmitted to another by direct or by indirect contact with the one who is suffering from the infection; the word has reference to the manner of transmission of an infection. Non-infectious diseases are never contagious. Contagiousness is well illustrated in those diseases in which the transmission takes place through the air, as seems to be the case in smallpox and scarlet fever. Here there may be a contagious zone of atmosphere surrounding the patient, in which the virus is present, and by which the agent reaches the lungs of one within the zone. Contagiousness is even more striking when it takes place through the medium of some inanimate substance, such as clothing or toys, which were previously within the contagious zone or in direct contact with the patient. Such substances, fomites, were formerly thought to be of great importance in the spreading of yellow fever; a theory which has been entirely exploded by the proof that this disease is spread by the bites of infected mosquitoes.

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1. A saphrophyte is defined as a vegetable organism which lives on dead organic matter. An organism which is habitually saphrophytic may be under the proper conditions a pathogenic organism (bacillus of malignant edema). And, on the other hand, a pathogenic parasite lives a saprophytic life, when it grows in our artificial culture media.

Typhoid fever is not highly contagious. There probably is no infected zone of atmosphere about the patient in the sense that there is about a scarlet fever patient. Yet it frequently happens that the nurse contracts the disease while caring for her patient. It is likely that she has in some way transferred the bacteria from the patient's sputum, urine, feces or skin to her lips or hands so that eventually they found their way to the intestines. At the same time it is not improbable that the point of entrance for the germs, i. e., the infection atrium, may at times be the lungs, the bacteria having been inhaled. However, typhoid fever is usually a "water borne" disease, seldom "air borne."

Contact Infection.

Infection Atrium.

We are to look on malaria as a strictly non-contagious disease, although no doubt is possible as to its infectiousness. No amount of personal contact with the patient will transmit it to another. To accomplish transmission the parasite must be actually injected into an individual, an event which happens exclusively, it is believed, through the bite of a mosquito which had previously fed on the blood of a malarial patient. In all probability the same is true of yellow fever.

Tetanus is another noted example of an infectious disease which is not acquired by contact with one suffering from it.

The special methods of transmission which are utilized by the different infectious agents will be taken up later in considering immunity to the individual diseases.

The various parasites have different ways of injuring the body. The itch mite burrows into and beneath the epidermis, causing mechanical irritation as well as the inflammatory reaction produced by its toxic excretions. The loss of blood caused by some intestinal parasites, and the hemorrhage which follows from the wounds, often leads to grave anemias and the general changes which are caused by such anemias. This is especially the case in the duodenal infection with *Ankylostoma duodenale* (ankylostomiasis).

Pathogenesis.

A certain variety of *Filaria sanguinis hominis* produces disorders by mechanically blocking the lymph channels.

The plasmodium of malaria, aside from the febrile disturbances seen in malaria, causes anemia by the destruction of blood cells.

It is generally said that the bacteria produce disturbances in both a mechanical and a toxic way. However, the more we learn about bacterial infections the more important do the toxic phenomena become. It is doubtful if any pathogenic bacterium is entirely devoid of toxic powers.

Mechanical and Toxic Injuries.

In lobar pneumonia we have a good example of a mechanical disturbance of importance. The alveoli become filled with a fibrinous and purulent exudate which makes a large area of pulmonary tissue unavailable for respiration. Yet, even here, the mechanical disturbance has arisen only as a result of the previous toxic action of the pneumococci on the capillary walls and the alveolar epithelium, permitting the escape of the blood and serum; and the accumulation of the leucocytes is no doubt due, in part, to the toxin of the coccus rather than to the bacterial cells alone.

It is probable that the emboli of bacteria which are sometimes found in the capillaries and small arteries cause disturbances through the shutting off of so much circulation, but still greater damage surely results from the toxins which are formed by the microbes making up the emboli.

The toxins of bacteria often show a remarkable selective action on one organ or another. Some bacteria through their toxins destroy the red blood cells to a great degree (staphylococcus and streptococcus); other toxins have a special affinity for the nervous tissue (tetanus); some attack particularly the endothelium of the vessels, causing many minute hemorrhages; in diphtheria and typhoid numerous areas of necrosis are found in the lymphatic structures. It is a somewhat common property of bacterial toxins to cause areas of necrosis in the parenchymatous organs, such as the liver and kidney. The consequences of such necroses depend naturally on their extent. It is said that in anthrax infections all the glycogen may disappear from the liver, and we would expect the functions of various organs to be affected through similar toxic actions. The albumin and casts which appear in the urine in many acute febrile diseases are, of course, the result of toxic action on the epithelium and endothelium of the kidneys.

Effects of Toxins.

A conspicuous effect of the micro-organisms which cause some chronic diseases is the development of new connective tissue and vessels; this is seen especially in tuberculosis, syphilis and actinomycosis. The import of the new connective tissue depends on its location. A large amount of it may form in the pre-existing connective tissues with no consequent harm, but if even a small amount of such tissue has been formed in a suitable place in the brain, as may happen in syphilis, the results may be grave.

It has been stated above that infectious diseases are caused by living pathogenic organisms. Investigations have shown, however, that the toxic products of some organisms can be obtained and separated from the organisms themselves by filtration, and that the microbe-free toxins when injected into animals will cause the same symptoms as the bacteria themselves (tetanus and diphtheria). Accordingly, for the sake of convenience, these toxins may also be considered among the infectious agents when they are separated from the bacteria. The various infectious agents, including these toxins, find their proper places in the following classification, which for the most part is that of von Behring:

Infectious Substances.

I. Living (i. e., pathogenic parasites).
   A. Macroparasites (e. g., intestinal worms, pediculi).
   B. Microparasites.
      1. Bacteria (fission fungi, i. e., each cell divides into two in proliferating).
      2. Fungi of more complex organization (e. g., aspergillum, oidia).
      3. Protozoa (e. g., *plasmodium malariæ*, *ameba coli*).

II. Non-living (i. e., toxins).
   A. Animal toxins (e. g., snake venom).
   B. Vegetable toxins.
      1. Non-bacterial (e. g., abrin, from the jequirity bean; ricin, from the castor oil bean; these are strong red corpuscle poisons, but are only of experimental interest).
      2. Bacterial.
         a. Soluble bacterial toxins (diphtheria and tetanus).
         b. Intracellular bacterial toxins, which are not separable from the cells in a soluble form.

(To be continued.)

Ozena.—Dionisio reports a number of cases treated by phototherapy and by radiotherapy with good results—amelioration or cure. In the *Rev. Hebd. de Laryngologie* he suggests the conclusion that light has a slow but constant curative effect on the ozenic process. Its immediate action is excitation of the mucosa, causing, when the light is intense, sneezing and hypersecretion. He has, however, never seen any serious inconveniences from this treatment except transient headache and vertigo. The effect of the light is evident not only in the parts most directly exposed but also elsewhere, and in most cases the sense of smell is either improved or fully restored. He attributes the effect to the antiseptic action, but still more to the improvement of nutrition by the action of the light. Similar good effects have been obtained by him in suppurative otitis and in certain forms of dry pharyngitis and catarrhs of the nose and posterior fossæ. There are certain difficulties in the treatment requiring special apparatus, which may embarrass the general practitioner and require or make more convenient the recourse to specialists or especial institutions for the light treatment.

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AUTOGENOUS REGENERATION OF NERVES.

The experiments of Bethe of Strassburg are attracting, and rightly, the attention of neurologists to an unusual degree. It would appear that Bethe has definitely established the fact that, on section of a peripheral nerve trunk, the distal portion can regenerate, in young animals at least, without any connection with the central stump. He has made a large series of experiments on the sciatic and other nerves. He excises long pieces and transplants the central stump so as to render any subsequent union with the distal trunk impossible. He has demonstrated that the myelin sheath and neurofibrils as well as the axon regenerate; he has shown that when regenerated the nerves are capable of conducting impulses; and more, that if the regenerated fiber be cut again the peripheral portion degenerates to the periphery, while its central portion, unconnected with either center or periphery, remains for a long time undegenerated. Conscientious autopsies have proved that the suggestions of Münzer and of Langley and Anderson that the regeneration can be accounted for by ingrowth of medullated fibers from branches of neighboring nerves to muscles, are without observational foundation. The regeneration occurs through the activity of the neurilemma cells in the course of the degenerating nerve. Regeneration is not due to the end organ, for Bethe has cut the sciatic high up and also in the popliteal space, has brought the two ends of this isolated piece together, has sutured them into a ring, and regeneration still occurred. Complete autogenous regeneration appears to be possible only in young animals. In adult animals the regeneration is incomplete if it occurs at all, owing, in all probability, to the lack of sufficient energy on the part of the tissues to carry on the process.

These recent experiments throw new light on the trophic function of the neuron. It was formerly supposed that regeneration occurs always by outgrowth of the axons in the central stump, and that it depends on trophic influences passed along the axons from the ganglion cells. Now we know that the peripheral fiber can regenerate when it is absolutely deprived of all influences reaching it from the central ganglion cell. Bethe admits that after autogenous regeneration occurs, connection with the center is necessary for the permanent welfare of the nerve, for otherwise it again undergoes slow atrophy and degeneration. The fact is established, however, beyond dispute, we think, that in young animals the dependence of the nutrition of a peripheral nerve fiber on the cell body of the neuron of which it forms a part is far less important than we have been accustomed to believe.

It should be noted that Bethe's work is in reality the continuation of some work done by Howell and Huber in 1892. These observers demonstrated autogenous regeneration of what they called "embryonal fibers," but they did not follow the process far enough to observe the complete regeneration of the fiber, as Bethe, by using young animals, has been able to do.

A review of the literature reveals the remarkable fact that the whole process of autogenous regeneration was accurately observed and described as long ago as 1859 by two French observers, Philipeaux and Vulpian. These investigators excised large pieces of the sciatic, median, hypoglossal and lingual nerves in young dogs, guinea-pigs and chickens, performing the experiments in a way that rendered union of the central and peripheral stumps difficult or impossible. They exposed the nerves after some months, and found that they did not have that shrunken appearance which is characteristic of degenerated nerve trunks; instead, they looked white and plump and felt firm. On mechanical and electrical stimulation of these peripheral nerve trunks, they were able in the case of motor nerves to cause contraction of the corresponding muscles, while the animal itself reacted in no other way to the stimulation. They examined the regenerated nerve trunks under the microscope and found large numbers of typical nerve fibers with myelin sheaths and axis cylinder processes. They further showed that if the regenerated nerve were cut a second time in its course, the peripheral portion underwent a second degeneration, while the central, now isolated, end remained intact. They felt sure that the nerves had really regenerated and had not simply remained undegenerated, for examination of control animals a few days after section demonstrated complete degeneration and entire loss of excitability. Philipeaux and Vulpian, therefore, concluded that autogenous uerve regeneration following complete degeneration is possible in young animals, and they put forward the view that, even in adult animals, no outgrowth of new fibers from the central stump occurs.

The findings of Philipeaux and Vulpian were not confirmed by other observers. Schiff seems to have repeated the experiments on animals 5 months old with negative results, and other writers denied the possibility of the results apparently without actually trying experiments for themselves. Vulpian himself took up the subject again in 1874. He repeated the experiments with results similar to those formerly obtained, but, curiously enough, interpreted his findings differently. He concluded that the regenerated fibers found must have come in through anastomoses with neighboring nerves—anastomoses too small to be visible to the

naked eye. His interpretation was in accord with the views of Wallerian degeneration and regeneration which had come to prevail. Subsequently the new histologic methods were introduced which permitted of a better staining of the axis cylinder processes. Stroebe, von Notthaft and others thought that they brought irrefragable proof that in the repair of nerves the regenerated axons always grow out from the central stump into the degenerated nerve. The scientific world accepted their conclusions, especially as at about this time the neuron doctrine was developed, the supporters of which at first laid great emphasis on the cell as an absolutely independent histologic and physiologic unit.

We have pointed out in these columns at various times the gradual modifications which the neuron doctrine has undergone. Our readers will recall that many histologists now believe that the neurons, though still legitimately to be regarded as the most important architectural and physiologic units in the nervous system, are not as absolutely separated from one another structurally, nor as totally independent of one another physiologically, as it was thought that they were when Waldeyer formulated the doctrine in 1891. Indeed, many believe that the "contact doctrine" must be given up and that a more intimate interneuronal connection must be granted. Nissl and a few others, wrongly confusing the "contact doctrine" with the neuron doctrine as a whole, have advocated that the latter be abandoned. The majority of the anatomists, physiologists and clinicians working on the nervous system, however, hold as firmly as ever to the neuron doctrine in general, though they modify it in detail.

An important service has been done by Bethe in repeating and extending the experiments mentioned and thus rescuing from oblivion the valuable discoveries of Philipeaux and Vulpian.

THE PORTLAND SESSION AS AN ATTRACTIVE VACATION.

The American Medical Association will hold its next annual session at Portland, Oregon, July 11-14. This place of meeting—far to the West—will require a journey of unusual length for those living east of the Mississippi, and especially for those in the New England and Atlantic Coast states. Many who are in the habit of attending the Association sessions will naturally hesitate before deciding to take such a long journey simply to attend the session—valuable as that privilege is—but the occasion offers an unusual opportunity for a splendid vacation, and this was one of the reasons why the date was made a month later than usual.

Our object at this time is to emphasize this fact: The trip to Portland and return may be made a memorable one if those who propose to take it will study out the possibilities beforehand. The vast territory west of the Missouri River is an unknown country to the majority of the members of the Association, but it is a country so full of grand scenery, natural wonders and boundless, undeveloped, natural wealth that to see it alone is worth all the trip will cost. The railroads of the West are much more liberal than are those of the East in allowing passengers to break the journey at attractive points, and each road is already making preparations to accommodate and to please those who patronize it. Of course, no one will go and return the same way, and as there are fifteen or twenty different routes, and as each has some special attraction to offer, it will not be an easy matter to decide which two promise the most. The possibility of visiting Alaska, northwest territories, Hawaiian Islands, California, Mexico, etc., on this trip is also worth considering. We expect shortly[1] to give a brief description of the various routes, but we advise those interested to write to the various railroads for circulars and for any information they may desire. The rates, as we have before intimated, will be $45 from Missouri River points, to which must be added the fare from points east of the Missouri River, which will probably be one fare for the round trip.

One of the great attractions, if not the greatest, will be the Yellowstone Park. If a sufficient number can be secured, THE JOURNAL proposes to arrange for a special train to start from Chicago June 30; this will stop six days at the park, arriving in Portland Monday morning. We can promise those who patronize it a most enjoyable outward journey. Arrangements will have to be made with the park management some months ahead, and hence it is necessary to know very soon if a sufficient number can be depended on to warrant arranging for the dates. Will those who desire to visit the Yellowstone Park on the way to Portland write us?

CONGENITAL ICTERUS WITH SPLENOMEGALY.

The large amount of study which has been devoted to the spleen in the last few years has led to a reclassification of splenic diseases. The association of certain forms of splenomegaly with hyperglobulia, and of other forms with anemia has been well emphasized in recent literature. Some writers have classed with splenic anemia certain cases of icterus associated with enlargement of the spleen, which recent study teaches belong in a class by themselves. According to von Krannhals,[2] who has quite recently collected all of the published cases, the association of congenital icterus with chronic spleen tumor was first noted by Minkowski in 1900. One writer has remarked "the new things in medicine are the things which have been forgotten," and von Krannhals has overlooked the fact that sim-

1. Information regarding the Portland session, railroad rates, etc., appears frequently under "Association News." In this issue hotel arrangements are described. Under Queries and Minor Notes also is some information in reply to a correspondent.

2. Deutsches Archiv für klinische Medizin, vol lxxxi, Nos. 5 and 6.

ilar cases were reported by Claude Wilson[2] as early as 1890.

The disease seems to be one which must be added to the few perfectly definite family diseases, though it does not seem to follow such definite lines of transmission, as does hemophilia, for example. There is some evidence to show that it is usually transmitted from mother to son, and from father to daughter. The main lesions are icterus, congenital in character, and associated with more or less enlargement of the spleen. The icterus usually varies in intensity from time to time, and in some cases is markedly influenced by the emotions, especially anger, or by exposure to cold. In some cases overindulgence in food or in alcoholic drinks served to intensify the icterus. In some instances the patients complained of no interference with their health, in others more or less serious disturbances, usually in the form of gastroenteric derangements, occurred from time to time. In some of Wilson's cases these attacks were accompanied by fever, and in all in which they occurred the jaundice was generally intensified. Skin affections, such as usually accompany obstructive icterus, are uncommon; a few patients had at times urticaria, xanthelasma or pruritus. Nearly all were dark-haired, sallow individuals who would be classed under the bilious temperament. In some instances nervous disturbances in the form of neurasthenia or hysteria were present. In one or two cases pains in the joints and even rheumatoid arthritis occurred. Aside from the icterus, the only constant physical sign was the enlargement of the spleen, which was in nearly all cases palpable, usually hard and described on palpation as resembling the spleen of chronic malaria. The liver was usually unaffected, though in a few cases it was slightly enlarged and tender, and one or two patients suffered from gallstones as a complication. The urine was at times normal, though in many cases it contained traces of urobilin. The stools did not show lack of coloring matter except in one case of the 26 collected by v. Krannhals. The blood in all carefully observed cases has shown more or less anemia; v. Krannhals noticed also a considerable variation in the size of the red cells and that a great many cells showed polychromasia.

Only one autopsy has been performed in this condition and that was in the case of Minkowski. The important lesions were found in the spleen and kidneys. There was no cirrhosis of the liver and no mechanical blocking of the bile passages. The spleen was enlarged, but showed nothing microscopically except hyperplasia and hyperemia. The cortex of the kidneys showed a peculiar brownish color, which was shown microscopically to be due to the presence in the cells of the convoluted tubules of large quantities of pigment granules giving the iron reaction.

The exact nature of this peculiar disease is not clear. It is evident that it is not due to mechanical blocking of the bile passages, as the stools are always well colored, and even the urine may be completely normal. Certain French writers have advanced the idea that there is a low grade of angiocholitis due to mild infection of the bile passages. The single autopsy does not bear out this view. The fact that the blood always contains bile pigment and the constant involvement of the spleen suggests some disturbance of blood destruction as the cause of the condition. Minkowski suggests that the primary lesion may be in the spleen itself. Until our knowledge of the exact part played by the liver and spleen in blood physiology and pathology is more definite the true nature of the condition will probably remain obscure.

2. Clinical Society's Transactions, vol xxiii.

PROGNOSIS IN TUBERCULOSIS.

So much has been said in recent years of the curability of tuberculosis, if the disease is properly treated in the incipient stage, and of the confidence with which lasting improvement can be looked for, under favorable conditions, even in the more advanced cases, that a very salutary hopefulness has been inspired in both physicians and patients. This is of itself an excellent addition to any method of treatment. Of late, however, there are some signs of a reaction. At times physicians have seen their hopes fail of realization, even though patients have been faithful in following directions and though apparently they have been in the most favorable surroundings for a cure.

This has led many physicians to believe that the merits of the open-air, abundant food treatment are exaggerated, and this, like other methods of treatment, is destined to be a disappointment.

Perhaps the best antidote for this reactionary feeling is a frank consideration of the cases of tuberculosis which have not a favorable prognosis, even though the disease may not be far advanced when the patients come under consideration. It is comparatively easy to glean from recent literature the reasons why, in individual cases, the results from the open-air treatment are not satisfactory. Practically all agree that in patients in whom pulmonary tuberculosis has run a rapid course the outlook is seldom hopeful. If the history extends only over three months, and if there is considerable loss of weight, even though there be no cavity formation, and though not much of the lung be involved, the prognosis is never favorable. Such patients have little power of resistance against the tubercle bacillus and ultimately are almost certain to become its victims. Another class of cases in which the prognosis is always doubtful includes those patients with only mild lesions who present a rapid pulse. The tubercle bacillus seems especially to affect the pulse and, as a rule, does not cause much disturbance of temperature. A high temperature is generally due to secondary infection. Children with cold abscesses almost invari-

ably have rapid pulse, though they generally have very little fever. If a small number of bacilli, therefore, are capable of so affecting the pulse, there is evidently a similar lack of vitality to that which exists in the cases which lose weight rapidly. It is a curious contradiction of what is usually considered to be the case that high temperature in tuberculosis does not necessarily indicate a bad prognosis. If a short walk sends the pulse up 30 points in a tuberculous patient, it may be assumed that the patient lacks resistive vitality. It has been pointed out also that the tendency of an individual to be normally under weight is an unfavorable symptom. A man who has all his life been twenty pounds under normal weight is almost certain to be especially susceptible to infection by the tubercle bacillus. As a rule, insurance companies prefer to take a man whose weight is normal, even though he has a family history of tuberculosis, rather than one who is under normal weight without any history of tuberculosis in his family.

There are other symptoms in individual patients which, while not necessitating an unfavorable prognosis, always make the outlook more grave, even in the apparently favorable cases. Prof. Burney Yeo has pointed out that the most important climatic element for the cure of consumption is a daily variation in temperature of more than twenty degrees, which, he claims, acts on the organism in a way to produce a conservative reaction against further bacterial invasion.

There are some patients who can not stand such variations of temperature, however; they become so intensely uncomfortable under those conditions that their appetite suffers and, of course, a cure can not be expected when an abundance of food is not taken. Such patients, as well as those who have exaggerated catarrhal tendencies, so that variations of temperature cause them to have acute exacerbations of their tuberculosis and troublesome forms of bronchitis, will do best and live longest if sent to a mild, unvarying climate, such as is to be found in certain parts of the South. The most that can be hoped for from such climatic treatment, however, is a prolongation of life, not an enduring, absolute cure. These patients may be made very comfortable by such change of residence, but, as a rule, they will have to stay in their new homes the remainder of their lives, and probably the years left to them will not be many.

TRUTH AND POETRY CONCERNING URIC ACID.

III.

It has been seen how the hypothesis that uric-acid formation is due to an oxidation of albumin, which stops short of urea, gradually came to be discredited. The keen Salkowski, in 1870, had pointed out that if the uric acid in leukemia is due to faulty oxidation, other incomplete oxidation products must also be present. Those most likely to occur would be oxalic acid and allantoin, but careful studies of the urine in leukemia revealed no increase in these compounds. Salkowski, in 1871, therefore rejected Bartels' conception and inclined to view with favor Ranke's hypothesis that uric acid is derived from xanthin bases and the spleen. Against this was the observation that xanthin bases appeared to occur in only very minute quantities in the tissues, and, further, that feeding experiments made with xanthin on dogs (an unsuitable animal, as will be seen) caused no increase in uric-acid excretion.

About this time there developed that remarkable series of researches which led to our modern knowledge of the nucleins and their cleavage products—researches which, as they were destined to exercise an important influence on uric-acid studies, must here be briefly referred to. Miescher, in 1874, working on salmon sperm, had isolated nucleinic acid, and had shown that xanthin bases are formed when it is decomposed. Kossel, 1879, took hold where Miescher was all too early compelled to leave off, and showed that the xanthin bases, namely, xanthin, hypoxanthin, adenin and guanin can be obtained from nuclein; they are not present as free bases in the nuclein, but in organic union in the nucleinic acids. Kossel,[1] in 1881, immediately recalled the old ideas of Scherer and Ranke, and suggested again that the xanthin bases might be forestages of uric acid. The main argument to the contrary, as we pointed out above, had been the sparsity of xanthin bases in the tissues, but Kossel showed that if the organically combined bases be considered, the amounts present, especially in organs like the spleen, liver and kidney, are large. A year later[2] he emphasized in this connection two facts: (1) that the muscles of those animals (birds and reptiles), whose chief metabolic end product is uric acid, are much richer in hypoxanthin than those of mammals; and (2) that in leukemia the nuclein bases in the blood are increased. It is not surprising, therefore, that experimental feeding of the xanthin bases was again resorted to (Baginsky, 1883); but the results left the matter in doubt, and the problem was not to be easily solved.

An important paper by Stadthagen,[3] in 1887, reported experiments on the feeding of xanthin to dogs, with negative results, so far as an increase in uric acid was concerned. Stadthagen was of the opinion for a time that the nucleins of the food are split sometimes with formation of xanthin bases, at other times with formation of uric acid. He thought it possible that when xanthin bases are once formed from nuclein there can be no formation of uric acid. He therefore fed

1. Kossel, A.: Ueber die Verbreitung des Hypoxanthins im Tier- und Pflanzenreiche, Ztschr. f. physiol. Chem., vol. v, 1881, p. 267.

2. Kossel, A.: Zur Chemie des Zellkernes., Ztschr. f. physiol. Chem., vol. vii, 1882, p. 7.

3. Stadthagen: Ueber das Vorkommen der Harnsäure in verschiedenen tierischen Organen, ihr Verhalten bei der Leukämie und die Frage ihrer Entstehung aus den Stickstoffbasen, Arch. f. path. Anat., etc., Berl., vol. cix, 1887, p. 390.

nuclein directly to dogs with the hope of finding the uric acid increased; the results were, however, negative, though Stadthagen suggested that this might be due to the fact that the nucleins of food are "dead" and may behave differently in metabolism from the nuclein of living cells. This investigator finally, apparently reluctantly, returned to the old view that uric acid is derived from albumin. His studies had led him to the belief that an origin from nuclein or xanthin bases can not be proved. It seemed to him positively demonstrated (1) that an increase of uric acid is absolutely dependent on the albumin-intake (irrespective of nuclein or xanthin bases), and (2) that uric acid, so abundant in children, must be derived in them from the casein of milk which contains no xanthin bases.

The fallacy of Stadthagen's reasoning is obvious. In the first place, careful experiments have shown that uric-acid excretion is completely independent of the general nitrogen-metabolism.[4] Haig had asserted, it is true, that uric acid and urea are always formed in the same proportion (1:33); this view was entirely arbitrary in its origin, and Haig tried to explain the facts contradicting it by assuming that, when the proportion varies, the discrepancy is due not to differences in formation of uric acid, but to increase or diminution in the alkalinity of the blood, with correspondingly increased or diminished solubility and elimination of uric acid in the urine. Herringham and Davies, in 1891, showed that the excretion of uric acid varies independently of the blood alkalescence as determined by titration, and a year later Herringham and Growes stated that experiments proved that uric-acid excretion is independent of the ammonia excretion in the urine (which they regarded as a measure of the latent acidity). A review of the various experiments "after the event" shows that the investigators who found a definite dependence of uric-acid excretion on albumin-intake had used almost exclusively meat as food in the experiments; where other albumins were administered such dependence was not found to exist. In the second place, Stadthagen was wrong, as Wiener points out, in assuming that the formation of uric acid on a nuclein-free diet (such as milk fed to young infants) makes its origin from xanthin bases or nuclein impossible, for it has been proved that animal cells are capable of manufacturing nucleins from other nitrogenous substances,[5] and this synthesized nuclein may serve as a source of uric acid.

In 1888 Mares put forward the hypothesis that uric acid is a product of the activity of the cell-protoplasm, "of that chemical process which forms the basis of cell-activity." While urea, according to Mares, arises directly from the decomposed albumins of the food, uric acid, he thought, is formed only indirectly from the albumins of food, through gradual transformation of the organized albumins of the body cells.

The time had now come for a very important discovery. It had remained for Horbaczewski,[6] in 1889, to establish with certainty the direct relation of uric acid to the nucleins. He squeezed spleen pulp, mixed it with defibrinated blood, passed air through it and found that large amounts of uric acid are formed. He believed, therefore, that the forerunner of the uric acid exists in the spleen, and that this forerunner, probably nuclein or one of its cleavage products, yields uric acid on oxidation. Later he isolated nuclein from the spleen and prepared uric acid directly from it; in a similar manner he made uric acid from the nuclein derived from other organs, and these findings, with slight modifications, have been controlled and confirmed by Giacosa (1891), Spitzer (1899), and others. Horbaczewski next resorted to feeding experiments, using rabbits and human beings instead of dogs for the tests, and found an increase in uric acid two hours after the administration of nuclein. All subsequent observers confirm this origin of uric acid from nuclein.

In spite of the fact that Horbaczewski had made a very important discovery, he unfortunately soon strayed into a wrong path. He assumed, without adequate basis, that only the nucleins of leucocytes take part in uric-acid formation, and denied the direct relation of other nucleins to the substance. With this phase of the subject we expect to deal next week.

4. Salkowski, 1889, von Noorden, 1893.
5. Tichimiroff, 1885, Kossel, 1886, Burian and Schnur, 1897.
6. Horbaczewski: Untersuchungen über die Entstehung der Harnsäure im Säugetierorganismus, Monatshefte f. Chemie, vol. x, 1889, p. 624.

SOCIETY MEMBERSHIP AS A QUALIFICATION.

It is announced that a man of means is to build four hospitals along the line of a certain railway extending through four states. The general public is to be admitted to these hospitals, and may be under the care of any physician "who is a member of the state medical society." As the profession becomes better organized, it will be recognized in more and more lines of activity that membership in representative medical societies is a good indication of the standing of a physician.

CORRESPONDENCE SCHOOLS OF MEDICINE.

In addition to correspondence schools of nursing and of pharmacy, there are now schools which teach medicine by mail. It is bad enough to propose to teach nursing by correspondence; when it comes to medicine it seems that the limit has been reached. In view of the state laws, it is difficult to understand how students of medicine can be obtained by these "schools," unless the students are in the dark concerning the state regulations governing the practice of medicine. In the present condition of medical knowledge it is difficult in four years of personal contact with teachers for a student to equip himself fairly for the practice of medicine. And yet these correspondence schools are finding dupes, or it would not pay them to advertise.

A MEDICAL CONGRESS ON SHIPBOARD.

The misfortune which befell a party of physicians en route to the recent Pan-American Medical Congress at Panama, namely, the delay of the ship so that they were too late for the congress, did not prevent them from having a little congress of their own on board. It seems that the party sailed from Baltimore in what should have been ample time to reach Panama, but the weather was bad, fog prevailed, and the machinery broke. When the two-score physicians realized that they would miss all but the last day of the congress, they proved themselves equal to the emergency and held their own little congress on board the ship, and the pleasant sequel of their ability to meet this unusual situation was the acceptance by the Pan-American Medical Congress of their branch meeting as a part of the proceedings of the regular congress. A medical congress is not usually held on board ship, and hence this one had a particular zest and spice about it.

AN ANTICIGARETTE MOVEMENT IN SPAIN.

We learn from the *London Globe* that the government of Spain has had brought to its attention the evils of racial degeneration due to the excessive use of tobacco, especially by the young. The minister of the interior, it is said, has drafted a bill absolutely prohibiting the sale of tobacco, cigars or cigarettes to any person under 17 years of age, under penalty of fines of from $10 to $100 for each offense, and of imprisonment in aggravated cases. It is said that the youth of Spain, especially the working classes, are largely illy-nourished and of feeble constitutions, and that much of their scanty income is wasted on tobacco, thus keeping up and aggravating the evil. Tuberculosis makes great ravages among them, and the state of affairs is such that the government evidently thinks it full time to inaugurate a social reform to curb the evil, as far as the use of tobacco by the young is concerned.

WHEN ECONOMY AIDS HYGIENE.

When the requirements of sanitation and prophylaxis of disease demand additional expenditure of money by those who are interested in keeping down expense, sometimes regardless of other considerations, trouble ensues. There is then required a campaign of education and of enlightenment of the people and of the lawmakers so that proper legislation may be secured to enforce what may not be willingly done otherwise. We are much interested to note the report of the Central Railway of New Jersey, which has recently installed a system of car cleaning by the vacuum sweeping system. The dirt and dust is drawn from all the surfaces in the car by suction through a pipe. The work is done effectively, hygienically, and—a noteworthy fact—economically. The railroad management announces that this system reduces the cost of cleaning so that two cars can be thoroughly cleaned under the new system at the same expense of time and money as was formerly consumed in cleaning one. This fact, in connection with the increased sanitary value, is sure to cause a general introduction of this method within a short time, not only by other transportation companies, but by theaters, hotels and places of public resort.

THE HALL OF FAME.

The absence of the name of any physician in the Hall of Fame of the University of New York influences the editor of the *Western Medical Review* to remark that "it is the obvious duty, not only of physicians themselves, but of the public, to see to it that in the election this year not less than three physicians are selected." The editor proceeds to recommend Benjamin Rush, David Ramsay, John Collins Warren, J. Marion Sims, Oliver Wendell Holmes. Under the rules, only persons born in the United States, now dead ten years or more, and most eminent in their respective fields, are eligible for nomination. The original plan was to select names for fifty of the 150 panels in 1900, and five more every five years thereafter until the list would be completed in 2000. In 1900, out of 252 nominations made, only twenty-nine received the required majority (51) of the votes cast and were elected. This makes twenty-six to be selected this year. If the medical profession really wishes some of its illustrious men to be elected, the proper procedure, we suggest, is to place the matter in the hands of a committee, who will acquaint the members of the Council of the University of New York with the claims to greatness of certain physicians, so the vote on the nominations by the members of the council may be made with full knowledge concerning the medical candidates.

THE DEVELOPMENTAL OR MYELINOGENETIC REGIONS OF THE HUMAN CEREBRAL CORTEX.

A few years ago Flechsig interested neurologists greatly by his subdivision of the cerebral cortex into primary sense centers on the one hand and association areas on the other. Since that time he has been busily engaged in the further differentiation of the cortex on the basis of successive medullations of the fibers. He now recognizes between thirty and forty definite and distinctly different myelinogenetic regions. He thinks that each myelinogenetic region is provided with a conjugate pair of bundles, one bundle bringing impulses to the area, the other carrying impulses from it. A further view advanced by Flechsig concerns the close relation of the development of the sulci of the brain to that of the medullary sheaths of the various bundles going to the different areas. He distinguishes primary sulci, those which appear very early, from terminal sulci, which are the last to develop. The earliest sulci appear, he asserts, where the brain "ripens" first, while the latest sulci to appear correspond to areas of the cortex, the fibers of which become medullated late. In how far these views of Flechsig will be confirmed by other investigators can not yet be determined. His earlier statements concerning the association centers have been severely criticized by Dejerine, Hitzig and others. Bianchi agrees with Flechsig in as far as he recognizes that the anterior portion of the frontal lobes are devoid of projection fibers and are concerned wholly with processes of association.

Medical News.

DISTRICT OF COLUMBIA.

Health of the District.—The report of the health officer for the week ended January 14 shows the total number of deaths to have been 121, of which 78 were white and 43 colored. There were 109 births, of which 74 were white and 35 colored. At the close of the week there were under treatment 22 cases of diphtheria, 30 of scarlet fever, 118 of typhoid fever and 2 of smallpox.

Woman's Clinic Election.—At the annual meeting held January 4 the following officers were elected: President, Dr. E. L. Ragan; vice-president, Dr. Robert Reyburn; treasurer, Mary F. Case; secretary, Miss E. Clarke. Clinical staff—Drs. Ida J. Heiberger, Phoebe R. Norris, A. F. Faye, Ada R. Thomas, Mary L. Stroble, B. Rosalie Slaughter, Anna Bartsch and Robert S. Lamb. Consulting staff—Drs. H. L. E. Johnson, Mary Parsons, James F. Scott, Edward A. Balloch, George N. Perry, Albert L. Stanley and Randolph B. Carmichael.

Medical Society Election.—At the annual meeting of the Medical Society of the District of Columbia, held January 2, the following officers were elected: President, Dr. T. N. McLaughlin; vice-presidents, Drs. John D. Thomas and Murray G. Motter; corresponding secretary, Dr. Thomas C. Smith; recording secretary, Dr. Francis P. Morgan; treasurer, Dr. Charles W. Franzoni, and librarian, Dr. Edwin L. Morgan. At the meeting held January 11 Dr. James J. Walsh of New York addressed the society, and a smoker was afterward held at which he was the guest of honor.

ILLINOIS.

Influenza Epidemic in Peoria.—Peoria is said to be suffering from one of the most severe attacks of influenza in its history. More than 2,000 cases have been reported and the disease is spreading rapidly.

Hospital Staff Warned.—In his introductory remarks to the newly-appointed members of the Cook County Hospital staff President Bundage of the county board said:

> You have been selected as members of the county hospital staff without pull, political or otherwise. I want you to understand that if you do not live up to the rules governing the institution no pull of any kind will stand in the way of your resignation being asked for.

Chicago.

Professor Barker Appointed to a Professorship of Medicine.—The board of trustees of Rush Medical College has appointed Dr. Lewellys F. Barker to a professorship in medicine in that institution.

Mortality of the Week.—There were 591 deaths during the week ended January 21, equivalent to an annual death rate of 15.47 per 1,000. Pneumonia heads the list with 120; consumption follows with 79; Bright's disease with 51; heart disease with 37; violence with 35, and influenza with 22.

Honor Memory of Dr. Mary Harris Thompson.—On January 30 will be unveiled at the Art Institute with appropriate ceremonies the portrait bust of Dr. Mary Harris Thompson, done by Daniel French, which club women and other friends of Dr. Thompson are presenting to the Art Institute.

Decline of Tuberculosis.—In the Bulletin of the Department of Health the following record is given of the decline of consumption mortality:

> In the decade ended 1860 the annual deaths from consumption averaged 29.57 per 10,000 of population; in the decade ended 1870 they averaged 20.47; in 1880, average 16.74; in 1890, average 17.56; in 1900, average 15.89—a reduction of 46.2 per cent. in fifty years. In 1901 the rate was 14.19; in 1902 it was 14.04—the lowest point yet reached, and less than one-half the average of fifty years previous.

MARYLAND.

Recognition of Services.—Dr. John S. Fulton, secretary of the State Board of Health, has been presented with a handsome silver tea service in recognition of his services in the cause of public health. A letter signed with the names of the donors—physicians and others—accompanied the gift.

Talbot County Medical Society has elected the following officers: President, Dr Julius A Johnson, Easton; vice-president, Dr. James A. Stevens, Oxford; secretary and treasurer, Dr. Philip L. Travers, Easton; delegate to state society, Dr. E. R. Trippe, Easton; and censors, Drs. Samuel C. Trippe, Royal Oak; Joseph S. Garrison, Easton, and Charles H. Rose, Cordova.

Affairs at the University of Maryland.—At the annual meeting of the General Alumni Association, January 18, Wilmer Brinton was elected president, and Dr. Eugene F. Cordell secretary-treasurer and chairman of the endowment committee. A university button was adopted and an address was delivered by Dr. Thomas Fall, president of St. John's College, Annapolis, advocating the establishment of a State University. A committee of five members was appointed to consider the matter and also a union of the university and St. John's College. Dr. Eugene F. Cordell has founded a university monthly, the name of which is "Old Maryland." On the editorial staff are Dr. R. L. Mitchell, medicine; D. W. Burroughs, law; J. Clarence Allen, dentistry, and C. W. Hornbrook, pharmacy.

Baltimore.

School Inspection.—The medical inspection of public schools will begin February 1, Drs. R. Tunstall Taylor and I. R. Page having been appointed inspectors.

Personal.—Dr. John C. Hemmeter has been elected a foreign member of the Deutsche Gesellschaft für Innere Medizin.——Dr. William Lee Howard has gone to Jamaica.——Dr. M. M. Whitehurst has gone to Mexico and California.

For Isolation Hospital.—Health Commissioner Bosley hopes to secure a municipal infectious disease hospital on city property near Bayview Asylum. The board of estimates has allowed him $1,000 to commence the medical inspection of schools.

Surgeons for Confederate Veterans.—The Isaac R. Trimble Camp, No. 1025, United Confederate Veterans, elected the following medical officers: Surgeon, Dr. John H. Grimes; assistant surgeons, Drs. Alex. L. Bell, James G. Wiltshire and Louis W. Knight.

Deaths of the Week.—For the week ended January 21, there were only 167 deaths reported, a singularly low mortality. This was a rate of 15.22 per 1,000, or, according to color, for the white, 12; colored, 32.65. Pneumonia and consumption led, each causing 27 deaths.

Vital Statistics.—According to the annual report of the Health Commissioner for 1904, there were 10,818 deaths; males 5,654, females 5,164. The death rate per 1,000 was 19.26 (white, 17.02; colored, 31.44). There were 8,599 births reported—males, 4,444; females, 4,155. The principal causes of death were pulmonary tuberculosis, 1,349; pneumonia, 1,121; heart disease, 815; Bright's disease, 749; diarrhea, 743; cancer, 450, and apoplexy, 381.

Association Election.—At the annual meeting of the Baltimore Medical and Surgical Association, January 9, the following were elected to office: President, Dr. C. Urban Smith; vice presidents, Drs. Charles O'Donovan and Nathan Winslow; secretary, Dr. Eugene L. Crutchfield; treasurer, Dr. W. B. Perry; executive committee, Drs. James M. Craighill, Arthur Hebb, and D. Streett; and committee of honor, Drs. John Neff, John W. Linthicum, and John I. Pennington. After the election of officers a banquet was served.

MICHIGAN.

Anti-Spitting Law in Lansing.—The first conviction under the new anti-spitting ordinance in Lansing occurred January 17, when Perry Boughner was found guilty of spitting on a sidewalk.

Prescott Critically Ill.—It is reported that the venerable Prof. Albert B. Prescott, dean of the school of pharmacy and senior professor in the University of Michigan, is critically ill with pneumonia.

Cushny Goes to London.—It is announced that Dr. Arthur R. Cushny, professor of materia medica and therapeutics in the University of Michigan, has resigned to accept a similar chair in the University of London, England.

Academy Elects Officers.—The annual meeting of the Kalamazoo Academy of Medicine was held January 12, at which the following officers were elected: President, Dr. John Bosman, Kalamazoo; vice-presidents, Drs. Wilbur F. Hoyt, Pawpaw, and Edward P. Wilbur, Kalamazoo; secretary-treasurer, Dr. Walter den Bleyker, Kalamazoo; librarian, Dr. Edwin H. Van Deusen, Kalamazoo, and censors, Drs. Harris B. Osborne and Ralph E. Balch, Kalamazoo.

NEW YORK.

Site for State Hospital.—The State Lunacy Commission has accepted the Baker site for a new state insane hospital in Washington County.

County Society Honors Dead.—The eighty-fourth annual meeting of the Erie County Medical Society was held January 10. Dr. William C. Krauss, president, was in the chair. Memorials on the following deceased members were read, as follows: Dr. J. G. Thompson, by Dr. N. W. Wilson; Dr. H. S. Ingraham, by Dr. W. C. Phelps; Dr. R. S. Meyers, by Dr. Henry Lapp; Dr. S. Lynde, by Dr. G. W. Wende, and Dr. A. T. O'Hara, by Dr. Edward Clark. The board of censors presented a caustic report on the medical criminals—abortionists, fakers, mediums, and advertisers—of Erie County.

New York City.

Personal.—Dr. Livingston Farrand, professor of anthropology at Columbia University, has been named as head of the National Association for the Study and Prevention of Tuberculosis.

Decrease in the Death Rate.—Reports show that there has been a decrease in the death rate in this city of 2.8 per cent. as compared with the same week of last year. The conditions throughout the city are better than they were at this time a year ago.

Change in Bulkley Lectures.—Dr. Bulkley's usual clinical lecture at the New York Skin and Cancer Hospital will be replaced February 1 by a lecture by Dr. Boleslaw Lapowski on the "Treatment of Syphilis," and on February 8 by a lecture by Dr. Charles Mallory Williams on the "Treatment of Acne."

New Ophthalmic Institute Site.—At the annual meeting of the New York Ophthalmic and Aural Institute it was announced that the trustees and their friends had collected $200,000 toward the erection of a new building and that a site had been purchased at 64th Street and Central Park. Ground will not be broken until $350,000 has been raised.

Orthopedic Hospital.—The report of this institution presented at the annual meeting shows a prosperous condition. A standing deficit of $22,000 was wiped out, although running expenses were $7,000 greater than the income. During the year 4,017 cases were treated, and a country branch and industrial school was opened at White Plains for convalescents.

The Work of the Milk Commission.—The milk commission of the Medical Society of the County of New York has distributed a notice to its members, calling attention to the fact that, while it has supervision of only that portion of a dealer's milk which carries its certification, it does not intend to allow a dealer known to have adulterated milk to sell certified milk.

Contagious Diseases.—There were reported to the sanitary bureau for the week ending January 14, 338 cases of tuberculosis, with 160 deaths; 307 cases of diphtheria, with 43 deaths; 281 cases of scarlet fever, with 17 deaths; 202 cases of varicella; 189 cases of measles, with 6 deaths; 56 cases of typhoid fever, with 9 deaths, and 26 deaths from cerebrospinal meningitis.

Memorial to Dr. Skene.—The sum of $5,000 has been given anonymously to the Kings County Medical Society for the founding of the Alexander J. C. Skene Memorial Fund. Dr. Skene was a former president of the society. The conditions of the fund are that the income from it shall be devoted to the purchase of books and journals relating to Dr. Skene's specialty—obstetrics and gynecology.

NORTH DAKOTA.

Appointments.—Dr. Edward M. Darrow, Fargo, as member Cass County Board of Insanity.——Dr. George A. Carpenter, Fargo, as superintendent of Cass County Board of Health.——Dr. John D. Henning, Fargo, as physician of Cass County.——Drs. F. B. Strauss, Glen Ullin, and George A. Stark, Mandan, physicians for Morton County.

Proposed State Laboratories.—Dr. J. D. Taylor of Grand Forks introduced a bill in the legislature providing "for the creating of a state bacteriologic and pathologic laboratory, for the control of such laboratory, and duties of the director, for the appointment of a director of such laboratory who shall be ex-officio state bacteriologist, and for an appropriation for the support of such a laboratory."

OHIO.

New Hospital Open.—The new hospital at East Liverpool was informally opened, January 2. It has been built wholly by private subscription.

Springfield Hospital Ready.—On December 29 the new City Hospital, erected at a cost of about $100,000, was formally opened. The staff has elected the following officers: Dr. John M. Buckingham, president; Dr. Bennetta D. Titlow, vice-president, and Dr. Jay D. Thomas, secretary and treasurer.

Society Election.—At the annual meeting of the Fairfield County Medical Society the following officers were elected: President, Dr. W. Stanley Samson, Lancaster; vice-president, Dr. George P. Haddell, Stoutsville; secretary, Dr. Henry R. Plumb, Lancaster; treasurer, Dr. John H. Axline, Lancaster, and censor, Dr. T. R. Mason, Sugar Grove.

Gift of Hospital.—Mr. J. F. Pocock has presented to Massillon a general hospital to be controlled by the Massillon Hospital Association, with a capital stock of $50,000. He has given a lot on which he will have erected suitable fireproof buildings, thoroughly equipped and furnished, all of which he will turn over to the city as a gift.

Personal.—Dr. August Schumacher, Hamilton, has succeeded Dr. Thomas D. Sharkey as coroner of Butler County.——Dr. Dan Millikin has been elected president of the Board of Education of Hamilton.——Dr. Kent B. Waite, Cleveland, has been adjudged insane and taken to the state hospital, Newburg.——Dr. Robert C. Chamberlain, Tiffin, has been appointed physician to Seneca County Infirmary.——Dr. Josiah Medbery, Columbus, has recovered from his recent operation and has resumed his work.

Cincinnati.

Deficit Does Not Alarm.—The deficit at Christ's Hospital for the year just ended will be about $1,600. Inasmuch as the hospital has used $15,000 for its charity work alone, this deficit is not regarded with alarm.

Hospital Directors Organize.—The Board of Medical Directors of the Cincinnati City Hospital has organized and elected Dr. Asa B. Isham, president; Dr. Louis Schwab, vice-president, and Dr. Byron Stanton, secretary.

Corpses Transported in Passenger Coaches.—The transportation of corpses in the smoking compartments of passenger cars of the Rapid Railway is to be fought by the newly-created Kennedy Heights Board of Health. Communications have been opened with the State Board of Health to see if the company has the right to carry corpses in the regular passenger cars.

Personal.—Dr. Otis L. Cameron has been appointed coroner, and Dr. Oliver L. Coe, deputy coroner, of Hamilton County.——Dr. Stephen E. Cone, secretary of the Academy of Medicine, has resigned, and Dr. Samuel Iglauer has been appointed temporary secretary.——Dr. James W. Miller has been appointed district physician vice Dr. William Muhlberg, resigned. He was appointed examining physician January 14, and Dr. Henry W. Albers appointed district physician in his stead.——Dr. Thaddeus A. Keamy was presented with a loving-cup on January 12 by the Beta Theta Pi fraternity.——Dr. Arthur Vos, house physician to the Cincinnati Hospital, is suffering from septicemia.

PENNSYLVANIA.

Erie County Medical Society, at its annual meeting in Erie, elected the following officers: President, Dr. George B. Kalb; vice-president, Dr. Thomas Purcell; secretary, Dr. Adella B. Woods; treasurer, Dr. George S. Ray; library committee, Drs. David N. Dennis, James H. Montgomery and Ira J. Dunn; censors, Drs. James E. Silliman, Frank A. Walsh and Ira J. Dunn, and reporter, Dr. Guy C. Boughton.

Hospitals at Steel Mills.—The great increase in accidents in the mills of the United States Steel Corporation have led the officials of the company to take steps toward the erection of two emergency hospitals in their mills at Donora. Previously all men injured had to be conveyed to the hospitals of Pittsburg or McKeesport before their injuries could be properly treated and their true character determined.

Mine Accidents.—From official information of the mine inspectors of the four anthracite districts in the Wyoming Valley it is shown that in all 537 men and boys were killed or injured during 1904. There were 199 fatal and 338 non-fatal accidents in the districts, leaving 109 women as widows and 212 children, orphans. In the tenth anthracite district an official report shows there were 37 fatal and 54 non-fatal accidents, an increase of 85 per cent. over the preceding year. These accidents left 19 widows and 44 orphans.

Society's Annual Meeting.—The Northampton County Medical Society held its fifty-sixth annual meeting in Easton, January 20. The following officers were elected: President,

Dr. George N. Schwartz, Pen Argyl; vice-presidents, Drs. Arthur D. Reagan, Easton and Harry C. Pohl, Nazareth; secretary, Dr. James J. Quincy, Easton; corresponding secretary, Dr. John E. Fretz, Easton; treasurer, Dr. Joseph S. Hunt, Easton; reporter, Dr. James J. Quincy, Easton; censors, Drs. Edgar M. Green, W. H. Duler and H. J. Lacier, and delegate to state society, Dr. Henry D. Michler, Easton.

Care of Tuberculous Sick.—The Philadelphia County Medical Society, at its meeting January 18, adopted the following resolutions:

WHEREAS, The state of Pennsylvania has not up to the present time provided adequate accommodation for the care and treatment of its tuberculous sick; and

WHEREAS, The plans now in projection throughout the state, even when successfully executed, will provide for but a mere fraction of the number of those who need skillful care and medical direction, both for the saving of their lives and the protection of the community; and

WHEREAS, Experience has shown that by properly directed open-air treatment the great majority of cases of incipient tuberculosis can be permanently cured, and that a large percentage of the daily new infections can be avoided if such patients are removed from close association with others not yet infected; be it

Resolved, That the Philadelphia County Medical Society does hereby petition the legislature of the state of Pennsylvania:

1. For the appropriation of a certain sum of money, not less than $500,000, to be devoted to the establishment of camps, sanatoria, hospitals and dispensaries, for the tuberculous sick of the commonwealth of Pennsylvania.

2. For the setting aside of such portions of the State Forestry Reserve as may be recommended with a view to accommodating camps and buildings, such as may be deemed necessary for the care of tuberculous patients, and for their scientific study and treatment; further be it

Resolved, That the president of this society be authorized and instructed to appoint a committee of three from the membership of the society to co-operate with similar committees that may be appointed from other societies in urging on the legislature the need of state aid in the suppression of tuberculosis.

Philadelphia.

Women's Hospital Report.—During last year there were 1,217 patients admitted, making a total of 1,281 patients treated. There were 20,000 cases treated in the clinics and 201 births in the maternity.

Jewish Hospital Staff.—The following physicians were elected to the staff of the hospital: Dr. Charles P. Noble, consulting surgeon; Dr. Lawrence F. Flick, consulting surgeon; Dr. William H. Randle, obstetrician; Dr. Joseph B. Potsdamer, pediatrist, and Dr. Sidney L. Feldstein, radiologist.

Talk on Consumption.—Efforts are being made by the Henry Phipps Institute to educate the textile workers of the city as to the danger of spreading consumption and the means of combating its propagation. A series of lectures will be delivered to the textile workers of Kensington by members of the staff of the Henry Phipps Institute on the home treatment of the disease, beginning January 30.

Chicagoan in Philadelphia.—Dr. Robert B. Preble, professor of medicine in the Northwestern University Medical School, will address the students of the Jefferson Medical College in the college building, February 1, under the auspices of the H. A. Hare Medical Society, on "The Extra-Pulmonary Localization of the Pneumococcus." He will be tendered a reception by the society immediately after the address.

Clinical Assistants Organize.—On January 4 the Association of Clinical Assistants of Wills Hospital was organized, with the object of bringing together all who have served in this capacity in the hospital for the informal discussion of ophthalmic subjects. Dr. S. H. Brown was elected secretary-treasurer, and an executive committee was elected, consisting of Drs. John T. Krall, Josephine P. U. Hildrup and S. H. Brown.

Health Report.—The total number of deaths reported for the week was 519, an increase of 19 over the preceding week and a decrease of 99 from those of the corresponding week of last year. Eighty-three deaths were due to acute inflammation of the respiratory tract, 12 to typhoid fever, 62 to pulmonary tuberculosis, 23 to cancer, 25 to apoplexy, 51 to heart disease, 11 to enteritis and 37 to Bright's disease. There were 236 cases of contagious disease reported, with 24 deaths, as compared with 222 cases and 24 deaths for the previous week. No smallpox was reported.

Oncologic Hospital Open.—The American Oncologic Hospital, the first institution in the country to be devoted exclusively to the study and treatment of cancer, was formally opened January 4. Dr. G. Betton Massey made the opening address. Both charity and pay patients will be admitted and it is the purpose of the staff to employ all methods of treatment that promise to be of service in this class of cases, including electrochemical sterilization and radiotherapy. Dr. Boardman Reed is attending physician, and Drs. Addinell Hewson, G. Betton Massey and Howard R. Swayne are the attending surgeons.

Medico-Chirurgical Alumni Election.—The alumni association of the Medico-Chirurgical College has elected the following officers: President, Dr. William L. Shindle; secretary, Dr. Stilwell C. Burns; treasurer, Dr. Emanuel S. Gans, and executive committee, Drs. W. Easterly Ashton, Arthur E. Blackburn, Arthur C. Buckley, L. Napoleon Boston, Joseph A. Cramp, John W. Croskey, Morton P. Dickeson, John H. Egan, L. Webster Fox, Andrew Godfrey, Charles H. Gubbins, S. Leon Gans, A. Wiese Hammer, W. Frank Haehnlen, Harry Lowenbury, Francis Lemmer, John A. McGlinn, John A. McKenna, George W. Pfromm, Joseph V. C. Roberts, Herbert J. Smith, John W. Shoemaker, Mitchell P. Warmuth, John W. Wilkins and J. L. Widmyer.

Bequests and Donations.—By the will of Selina Walker the Jewish Hospital Association receives $7,286.73, and the Jewish Maternity Hospital, $2,428.90.——By the will of the late Francis T. Fassitt $5,000 is bequeathed to the Children's Hospital for the establishment of a free bed, to be known as the Anne Avoir Fassitt bed.——The will of Adolph Heinman bequeaths $500 to the Jewish Hospital and $350 to the Jewish Maternity.——By the will of William McFatrick, on the death of his wife and sister, the remainder of the estate, valued at $62,800, will be divided among the Presbyterian, Episcopal, Jewish, Methodist and Howard hospitals for the establishment of free beds. The will also requests the widow to donate an amount sufficient to establish a free bed in St. Agnes' Hospital.——By the will of Margaret Sullivan $200 is donated to St. John's Orphan Asylum.——Benjamin Tousey of Syracuse, N. Y., has donated $5,000 to the University of Pennsylvania Hospital to endow a free bed for the use of employes of the Central News Company.

GENERAL.

Government Laboratory Building in Use.—A part of the new building for the Bureau of Government Laboratories, Manila, P. I., has been completed, so that a number of the branches have moved into their departments.

Panama Service Examination.—The examinations by the United States Civil Service Commission were held January 18, as announced in THE JOURNAL, Dec. 17, 1904, to select eligibles for service under the Isthmian Canal Commission. The attendance of physicians was not very large in many cities. In St. Louis there were twelve.

Health Report of the Philippine Islands.—The report of the Board of Health of the Philippine Islands and the City of Manila for September, 1904, states that 797 births were registered during the month. This is the largest number ever registered in any one month and gives a birth rate of 44.11 per thousand. During September there were 1,146 deaths in the city of Manila; of these 1,064 were residents and 82 transients. Fifty-four per cent. of all deaths occurred in children under one year of age, the number of deaths from infantile convulsions being 367. There were 5 cases of smallpox, with 2 deaths. One death from bubonic plague was registered. There were 96 deaths from tuberculosis and the same number from chronic diarrhea and enteritis.

CANADA.

Ontario Medical Association.—The annual meeting of this association will be held in Toronto, June 6-8, 1905, under the presidency of Dr. William Burt of Paris, the secretary being Dr. Charles P. Lusk, Toronto. Mr. I. H. Cameron is chairman of the committee of arrangements, and Dr. Alexander Primrose is chairman of the committee on papers and business. Dr. Oehsner of Chicago will deliver the address in surgery.

Northwest Territory Laboratory.—The government of the northwest territories of Canada is establishing a new bacteriologic and pathologic laboratory and has appointed Dr. George Charlton, formerly of the McGill University pathologic department, chief of the laboratory. Dr. Charlton will at first investigate swamp fever in horses, which die very rapidly once they contract this disease. Later he will investigate diphtheria and typhoid epidemics.

Canadian Medical Association.—The thirty-eighth annual meeting of the Canadian Medical Association will be held at Halifax, Nova Scotia, Aug. 22-25, 1905. Dr. John Stewart, Halifax, is the president, and Dr. George Elliott, Toronto, general secretary. The address in surgery will be delivered by Mr. Francis Caird of the Royal Infirmary, Edinburgh, while

Dr. Howard Kelly, Baltimore, will deliver the address in gynecology. Dr. J. W. Stirling, Montreal, will deliver an address in opththalmology, and there will be in addition addresses in medicine and in pathology. Dr. A. J. McCosh, New York, will also be asked to contribute a paper. The Medical Society of Nova Scotia will act as host to the Canadian Medical Association, and, therefore, will not hold its regular annual meeting.

Physicians Scarce in Newfoundland.—In the small settlements along the remote stretches of the Newfoundland coast there is lack of medical attendance. It is not uncommon for a physician to travel 100 miles by boat—there are no roads—to attend a patient. In many places the duties ordinarily fulfilled by a physician are performed by some man or woman who has picked up a little medical knowledge. The result in increased mortality statistics may be imagined. The government of Newfoundland is endeavoring to remedy this by appointing physicians or surgeons to the magistracies in the different townships. In the sparsely settled districts an allowance of $500 a year is made to a medical man who will settle there, on condition that he will undertake magisterial duties in addition to his professional ones. The former are not very onerous, usually having to do with fishery disputes, settlements and the like, for serious crime is unknown, and the other representative of the law is what is called a local constable, a person who acts for $2 a week in the capacity of process server and census enumerator.

FOREIGN.

Plague in Russia.—Plague has appeared in one of the Ural districts and has made rapid progress among the Kirghiz and cossack population. The epidemic of cholera in the Caucasus region has almost died out.

German Red Cross Mission to the Seat of War.—Professor Henle of Breslau is in charge of a Red Cross expedition from Germany to Japan. It was expected to sail from Genoa, January 15. Dr. Fittig and a trained nurse accompany the expedition. The rest of the personnel is to be supplied by the Japanese government.

Public Care for Tuberculous Children.—The new sanatoria in Germany are being constructed with a view to having a department for tuberculous children. The sanatorium near Hagen has made arrangements to board children under 14 during the winter months when lung trouble is suspected. The city of Charlottenburg has found the "school in the woods" such a success for weakly children that a second one is now planned. They are in the country, but close to the city limits, accessible by trolley.

The Madeira Sanatoria.—The first one of the sanatoria erected on the Madeira islands by German private enterprise, under the leadership of the Prince von Hohenlohe, has been formally inaugurated. It is at an elevation of nearly 1,000 feet, and has accommodations for sixty guests. It is planned to have accessory stations at various elevations higher up on the mountains, to determine the most favorable altitude for individual cases. The particulars of this new health resort were mentioned in the news columns of THE JOURNAL of April 2, 1904, page 903. Pannwitz, Rumpf, B. Fränkel, Wolf and Römer are among the physicians on the board of directors.

Progress of Cremation.—The number of cremations in France during 1904 was only 350, almost all at Paris. The crematory at Rheims has been ready for operation for more than two years, but not a single application has been made for cremation. In Germany the record of cremations for 1903 was less than 1,100, while in England the number was only 500. In Italy there were 400 cremations, and about the same number in Sweden and 300 in the Argentine Republic. The *Semaine Médicale* comments on these figures that cremation is not making much progress elsewhere than in the United States and in the Orient, where it has always been frequently employed. It cites at 4,000 to 5,000 the number of cremations in this country.

Report on Ankylostoma.—The committee appointed by the British Association for the Advancement of Science has made a preliminary report concerning ankylostoma, which is thus summarized by *Science:* There are many channels by which ankylostoma might be introduced into British coal mines. The conditions found underground in these mines are such that the worm would, in many cases at any rate, probably become firmly established. In view of the expense and difficulty of eradicating the worm from any mine in which it has become established it is of the greatest importance that preventive measures should be undertaken without delay. Complete eradication does not yet appear ever to have been accomplished. The necessary prevention is best accomplished by the provision of proper sanitary accommodation in the main roads underground and at the pit's mouth, by regulations to prevent pollution of the pit by human feces, and by the establishment of a limited quarantine system for work people from infected areas, with compulsory notification of cases to the home office.

School Contagion of Infectious Diseases.—M. Cohn is medical school inspector at Charlottenburg, and he has been studying the statistics of the four largest cities of Germany during the last ten years to learn whether infectious diseases are more prevalent or less so during the school vacations. If they are less prevalent at this time, it would be an argument in favor of closing the schools at the outbreak of an epidemic. He finds that the vacations do not seem to have any effect on the prevalence of diphtheria and scarlet fever. Measles, on the other hand, drops abruptly so soon as the schools close for a vacation. He explains this by the fact that scarlet fever and diphtheria are not so contagious in the early stages. The child is usually so sick that it is kept at home before the really contagious stage is reached. In measles the disease is highly contagious from the start, and he recommends to close the school room at once whenever measles is prevalent among the scholars. In the discussion which followed his address on the subject at the meeting of the German Public Health Society, December 6, the leading medical authorities reiterated that a child who has had scarlet fever should be kept at home for six weeks at least if transmission by way of the school is to be avoided.

Approaching International Anti-Tuberculosis Congress.—The French prime minister has asked for an appropriation of $20,000 for the approaching International Anti-tuberculosis Congress to be held at Paris in October of this year. The committee of organization comprises Casimir-Périer, ex-president of the republic, and L. Bourgeois, former prime minister, with Berthelot as acting president of the congress, and Chauveau, Herand and Brouardel as vice-presidents. The chairman of the section on medical pathology will be Bouchard, while Lannelongue will be chairman of the section of surgical pathology, Grancher of children's diseases, and Landouzy of the section for care and aid for the adult tuberculous. M. Letulle has been appointed secretary general of the congress and P. Masson, treasurer. Among the addresses already promised are some on the "Treatment of Lupus," "Early Diagnosis of Tuberculosis," "Comparative Study of Various Tuberculoses," "Ileocecal Tuberculosis," "Operative Treatment of Tuberculosis of Meninges and Brain," "Etiologic Factors,," and studies of sanatoria, etc. June 30, 1905, is the latest limit for the reception of communications. A tuberculosis exposition is planned in association with the congress. The exhibition will be arranged in two sections, a scientific and an industrial section.

Legislation Against Irregular Practices in Baden.—The bill to restrict quack practices, introduced into the Baden legislature, was described in THE JOURNAL of March 19, 1904. As finally adopted, the drastic measures first proposed were somewhat modified, but even under these circumstances the measure is regarded as a great advance in the protection of the public against irregular practices. Dr. Neustätter of Munich describes in the *Münchener med. Wochenschrift* of December 20 the history of the bill on its way through the upper and lower houses as extremely characteristic. The representatives of the people in congress assembled always seem to shrink with infinite dread from inflicting the slightest harm on the irregular practitioner. This is easily understood, he remarks, from the lay standpoint. It is impossible for laymen to believe that any one could be so dastardly as to play with the lives and the health of his fellow-men. This idea is remarkably firmly rooted in the popular mind. It is not shaken even by the testimony of facts which teach the contrary. The bill forbids extravagant statements in advertisements and "absent treatment." The latter clause is the first restriction of the kind, he adds, adopted by any state. Advertisement of aphrodisiac and anti-conception measures is likewise prohibited, as is also the case in Hamburg and Berlin. It is forbidden to advertise remedies which can not be sold without a physician's prescription. The bill is original in several points and not a mere imitation of what other states have adopted. It was prepared by the Carlsruhe board of health and its chairman, the mayor, with the co-operation of the local physicians.

Health Statistics of Malta.—The *British Medical Journal* states that a comprehensive scheme for the drainage of the

large towns and principal villages in the two islands has been drawn up, and the work is being carried out as rapidly as the resources of the government will permit. The drainage of the three cities is now practically completed, and that of the large suburbs of Sliema and St. Julian's is well advanced. The population on March 31 last was estimated at 197,070, and the number of births registered during the year was 7,173, representing a general birth rate ot 37.69 per mille. The general state of public health is recorded as "good," though it is stated that the percentage of deaths among children under 5 years of age was 51.8, and that the general death rate was 24.45 per mille. Zymotic diseases accounted for 288 deaths, or 5.7 per cent. of the total number of deaths. Two outbreaks of smallpox occurred, the disease having been imported in the one case from Tunis and in the other from Sicily, but in neither did it assume serious importance, though out of the 50 cases recorded 10 died. The mortality from diphtheria seems to be exceedingly high, the disease proving fatal in 57 cases out of the 124 attacked. No statistics, unfortunately, are given with regard to Malta fever, it being merely recorded that there were 706 cases of "fevers" and 99 deaths. The climatic conditions of the year were peculiar, the summer months being unusually cool, and the rainfall for the year reaching a total of only 14.695 inches, some 10 inches below that of the preceding record.

The Suit Against the Gelsenkirchen Waterworks.—The famous suit brought by the state against the directors of the waterworks supplying a district in Germany in which an epidemic of typhoid fever broke out, has ended in the condemnation of the defendants to a fine and the costs of the suit, which are in the neighborhood of $25,000. The prosecuting attorney (*Staatsanwalt*), in closing his address, remarked that the twenty-two days during which the suit had lasted to date had accomplished more in the way of promoting public health and sanitation than twenty-two years under ordinary circumstances. There were probably 5,000 cases of typhoid during the epidemic, with 9 per cent. mortality in the 3,235 officially reported cases. It was established that nearly all these cases occurred in a district in which the water supply was clandestinely augmented during dry seasons by a pipe bringing unfiltered river water into the supply. This pipe was opened usually the last three days of the week during the summer, but was closed up at other times. When the epidemic broke out and the existence of the side pipe became known to the authorities, it was walled up and the entire pipe system of the waterworks, 300 kilometers in length (about 186 miles), was disinfected with sulphuric acid. About 15,000 quarts of 60 per cent. sulphuric acid were poured into each of the reservoirs until the desired concentration of 1 per 1,000 was reached. The entire faucet system was tied up for eight or nine hours. This was done September 29, and scarcely a single new case developed after October, the epidemic subsiding as abruptly as it had begun early in September. The indictment against the directors of the waterworks was at first that they had induced the epidemic by willful use of unfiltered river water in the side pipe mentioned above. The authorities found that they were unable to prove this indictment, as a leak in the main pipe had occurred in July, and as there was a possibility of other sources of contamination, consequently the indictment was changed to an accusation of the adulteration or falsification of food, and under this caption the directors were condemned as stated above to fines of $300 to $375, with the costs of the suit, which amounted to about $25,000. The expert testimony in the case is reported in full in the *Münchener med. Wochenschrift*, Dec. 20, 1904.

LONDON LETTER.

Plague Inoculation in India.

The rapid spread of plague in the Punjab during the cold weather of 1901-2 led the government of India to make provision for the inoculation of no fewer than 7,000,000 persons during the following winter by the combined efforts of all the available medical establishments and of 37 doctors especially engaged in England. But when the scheme had been in operation only four or five weeks, it was brought to a summary close by a deplorable catastrophe, which has been previously referred to in THE JOURNAL. On Nov. 6, 1902, nineteen persons who had been inoculated at a certain village from a single bottle of the Haffkine serum were found to be suffering from tetanus and all subsequently died. The chief justice of Bombay and two medical officers of distinction were appointed as a commission of inquiry. After prolonged delay, due to the submission of the report of the commission for examination and to further experiment at the Lister Institute in London, an official report has been issued. It states that in September, 1902, the standard method of manufacturing the Haffkine serum was changed by the director of the Plague Institute on his own authority, with the object of expediting the process and thus meeting the enormous demand made by the Punjab government. The change involved the omission of a small proportion of the carbolic acid, which had up till then been added to the original fluid as a precaution against contamination. The commission found that the tetanus bacillus was introduced before the bottle was opened, and thought that this occurred owing either to insufficient sterilization or to the process of filling the bottle from a larger flask having been performed with defective precautions. They expressed the opinion that carbolic acid was a valuable agent in restraining the growth of the tetanus bacillus when added to the plague serum and that its omission was a grave mistake. Experiments undertaken in India by two independent investigators confirm this view. The conclusions of the Lister Institute also generally confirm those of the commission. With a view to re-establish public confidence in the safety of the serum, arrangements have been made for a series of public demonstrations of the process of manufacture by the director of the Plague Research Laboratory in connection with the Health Exhibition organized by the Bombay Sanitary Association.

Physical Degeneration.

The question of national physical degeneration has been much discussed recently, both in the lay and in the medical press. Alarmist views stating that the national physique is undergoing serious degeneration have been put forward, but have not been proved. They seem to have been largely due to the journalism of the day, which finds sensationalism more profitable than truth. However, it is perfectly true that the physique of a large portion of the inhabitants of towns is far from satisfactory. At a meeting of the Society of Medical Officers of Health, Sir Lauder Brunton read an important paper on "Physical Degeneration." He pointed out that 34.6 per cent. of recruits for the army are rejected on inspection, and 3 per cent. more are either rejected within three months or discharged as invalids before completing two years' service. He advocated the proposal that school children should be periodically inspected. He discussed the part which health officers might play in the work, suggesting that they should see that proper accommodation is provided for play in good weather and for exercise in bad weather; that they should advise on the problems of feeding school children, and should see that the schools become great object lessons in ventilation and dietetics. He advocated school kitchens, and anticipated that by the agency of lady visitors to the homes the health officers could work to great advantage and could also convey instruction as to the feeding of infants. Instead of the municipalization of milk depots, he recommended that the large dairy companies should be obliged, under a heavy penalty, to supply milk which would conform with the requirements laid down by the municipalities. The country must be made more attractive in order to draw people from crowded towns. Local authorities should exercise their powers to treat overcrowded houses as nuisances.

The Jews and Infantile Mortality.

In an address on the sanitary condition of Manchester, Dr. Rhodes pointed out that though the general death rate had fallen considerably, the infantile mortality was almost as high as it was fifty years ago. It is comparatively low in the Jews' quarter, where the mothers stay at home and look after their children. The publication of this address was followed by an interesting letter to the *Manchester Guardian*, by "A Jewess," who stated that it had been shown by several investigations that Jewish children are superior to gentile in stamina and physique. This she attributed primarily to the fact that Jewish mothers do not work in factories, for it is considered a disgrace for a man to let "the mother of his children go to the factory, working above her strength and depriving her children, before their birth and after it, of the care which is their right." In cleanliness she did not consider that the lower class Jews, many of whom came from the ghettos of Russia and Poland, had any superiority, but they had the advantage of freedom from alcoholism.

Plague and Other Infectious Diseases in Rats.

The annual report of the medical officer of the local government board contains an important paper by Dr. Klein on this

subject. He made a carefully conceived series of experiments to ascertain the channels by which plague is conveyed from rat to rat. His experiments do not support the generally accepted view that the disease is largely conveyed by fleas. He could not find, as Dr. Tidswell did, that an emulsion of fleas taken from a rat dead of plague is capable of conveying the disease to other rats. According to Dr. Klein, fleas may occasionally convey plague from rat to rat, but this is not the common method of conveyance. On numerous occasions he kept rats in the same cage for some time in order that their initial fights might cease, and then inoculated one with plague from which it died, but none of the others succumbed, and their susceptibility was subsequently proved by inoculation. Dr. Klein thinks that one of the most common causes of infection from rat to rat is by means of the wounds and abrasions which are to be found on nearly all rats in the wild state. Such abrasions may easily become inoculated by articles soiled by the excreta of rats ill with plague. He thinks that rats may also be inoculated owing to their fighting propensities and to the fact that when ill with plague they are extremely irritable. In the case of a rat afflicted with pneumonic plague, the oral mucus would thus be a ready means of infection. An interesting part of the report is that which relates to disease other than plague in rats. Dr. Klein refers to the disease caused among rats by the Danysz bacillus, by means of which it was sought to destroy the rats in the Paris sewers. This bacillus is easily distinguished from that of plague. In the case of the SS. George Royle, on board of which many dead rats were found while it was being unloaded at Bristol, the case was complicated by the fact that the vessel came from Smyrna, which was infected with plague. Much alarm was naturally caused, but it was eventually proved by Dr. Klein that the bacillus which presumably had caused the death of the rats was not that of plague, but a bacillus which he termed *Bacillus bristolense*. The report is valuable as indicating caution in concluding that a fatal disease among rats on board ship is necessarily due to plague.

Queries and Minor Notes.

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

TESTS FOR ACETONE AND INDICAN.

MT. VERNON, N. Y., Jan. 17, 1905.

To the Editor:—In your issue of January 7, page 53, reviewing Croftan's clinical urinology, you refer to Penzoldt's test for acetone and Strauss' method for quantitative indican determination. Will you kindly publish those methods and give reference to original papers? F.

ANSWER.—The indigo test of Penzoldt depends on the transformation of orthonitrobenzaldehyd into indigo blue. A few crystals of orthonitrobenzaldehyd are dissolved in hot water and, after cooling, a little of the fluid to be tested and some sodium hydrate solution are added. If acetone be present the fluid turns yellow, then green, and then blue (indigo formation). If desired, the indigo can be shaken out with chloroform and further tests for its identity made. The test can be applied directly to the urine, and will yield a positive reaction if acetone be present in abundance, but for the detection of small amounts of acetone it is necessary to distill off 30 to 40 c.c. from 250 c.c. of urine, using a cooler. The most of the acetone passes over in the first 10 to 20 c.c. of the distillate, and the test is applied to the distillate. Penzoldt's test is very reliable and free from objection. Many prefer it to Legal's test. Penzoldt's article will be found in the *Deutsches Archiv f. klin. Med.*, vol. xxxiv (1883), p. 132. Recent studies by Ellram and also by von Melckebecke confirm the reliability of the test. Strauss' method for the determination of indican, in a rough way, quantitatively, for clinical purposes, is as follows: Twenty c.c. of urine are mixed with 5 c.c. of a 20 per cent. solution of acetate of lead. Ten c.c. of the filtrate (equal to 8 c.c. urine), are placed in a separating funnel, which is closed below by a glass stopcock and above with a glass stopper; it is graduated to 5, 10, 15, 20 and 25 c.c. To the 10 c.c. of the filtrate are added 10 c.c. of Obermayer's reagent (concentrated hydrochloric acid containing 2 grams of perchlorid of iron per liter) and 5 c.c. chloroform; the tube is shaken gently several times, allowed to stand for some time and shaken again. The chloroform solution is then drawn off, more chloroform placed in the separating funnel, and the process repeated until the chloroform extracts no more color. After this 2 c.c. of the combined chloroform extracts are placed in a test tube of the same size and form as the test tube containing a control solution of indigotin in chloroform (1 mgr. in 1,000 c.cm.). The colored chloroform solution is diluted with pure chloroform until the color is the same as that of the control solution. The quantity of indican present is easily calculated. If x is the amount of chloroform in cubic centimeters used for extraction, and y the amount used for dilution, then $\frac{1}{2}xy$ would give the chloroform value from which the amount of indigo can be calculated, it being remembered that the test solution contains 0.001 gm. of chemically pure indigotin in 1,000 ccm. and that 8 ccm. of urine was used for the reaction. The control test tube of the standard solution should be kept in a dark cupboard. Strauss has published his method in the *Deutsche med. Wochenschrift*, vol. xxix (1902), p. 299. A somewhat similar colorimetric method has been introduced by J. Bouma (*Deutsche med. Wochenschrift*, vol. xxviii, 1902, p. 705). Bouma uses a so-called indicanurometer which consists of eleven test tubes of the same size and thickness arranged in a row. Six of these contain a solution of indigo red (of urinary origin) in chloroform, the strength varying so as to correspond to 5, 10, 15, 20, 30 and 40 mg. of indigo per liter of urine. The tubes are hermetically sealed and serve as control solutions. They must be kept in the dark. To make Bouma's test, 10 ccm. of urine are precipitated with 2 ccm. of lead acetate solution. One places 5.5 ccm. of the filtrate (= 5 ccm. urine) in a test tube and adds 10 ccm. of isatin-hydrochloric acid solution (20 mg. purest isatin [Merck] dissolved in 1 liter chemically pure, iron-free, concentrated hydrochloric acid). The tube is heated to boiling for some seconds, then cooled and the contents extracted by shaking with 5 ccm. chloroform. This chloroform extract is compared with the six control solutions and the quantity thus immediately determined. It must be emphasized that these tests give only approximately accurate results, though they are perhaps sufficient for clinical work. More accurate methods, but much more difficult of application, are those of Wang (*Zeitschr. f. physiol. Chemie*, vol. xxv, 1898, p. 406), and of J. Bouma (*Zeitschr. f. physiol. Chemie*, vol. xxxii, 1901, p. 82).

ANTIQUATED TEACHING IN MEDICAL COLLEGES.

———, ——, Jan. 18, 1905.

To the Editor:—Will you kindly suggest to me some way out of the following difficulty satisfactory both to the students and to the dignity of the professor involved? A colleague of mine is the professor of two branches in the medical curriculum of a certain college. He teaches one branch to second year men, the other to fourth-year men. The requirements of admission to the school have increased in the last few years to such a degree that many of the men who take their second year under him are better prepared in this particular subject than he is. Mutterings have occurred before, but I accidentally learned that the men were agitating a petition to have this particular man teach them the subject as it is to-day and not as it was ten years ago. The professor involved is the most influential member of this unendowed faculty and personally a warm-hearted, genial gentleman, as well as a good friend of mine, so I stopped the petition for these reasons and the fear that the ringleaders (the best-qualified men in their class) would be expelled. Now, two or more of us have recognized the antiquated teaching of this important subject. What can we do? If you desire to publish this, kindly withhold the city and my name and try to offer me a solution for the trouble. A. B. C.

ANSWER.—The case referred to is perhaps by no means an isolated instance. Although we withhold the name of the city, as our correspondent suggests, we think it wise to state that the college referred to is not located in Russia, in spite of the fear expressed lest the "ringleaders" be "expelled" for asking for a square deal. Could not the petition be framed so as not to speak disrespectfully of this evidently heavy stockholder? The matter, of course, ought never to have gone so far as to make it necessary for the students to risk being plucked by preparing this petition. The only right course to pursue now is for those who recognize the situation to explain it to the member referred to fairly and squarely, but in a gentlemanly and tactful manner, and afterward to bring the matter before the faculty. If this does not speedily secure the desired result, those who stand for honesty and for up-to-date medical instruction should not continue to be associated with the institution. In terminating their connection, they should state publicly the exact reason for their resignation. If a few men were to do this it would make a vast difference in the medical teaching of many schools in this country. For a physician to be connected with a school which gives out-of-date, insufficient and hence harmful instruction of this sort is to endorse that deficiency and is a discredit to the man.

SPELLING AMONG IRREGULARS.

———, ——, Dec. 26, 1904.

To the Editor:—The enclosed is an exact copy of an affidavit of "Dr." — — ———, which the county attorney gave me several years ago and which I know to be genuine. This old doctor lives

in the hills of ———— county, ———, and has been practicing medicine for over forty years. He never entered a medical college in his life, nor made a dissection. Although a very ignorant man, living in a little log house in a remote part of the country twenty miles from a railroad, he has patients from every state in the Union, and, like a great many quacks, performs some very miraculous cures (?). He is permitted to practice medicine in this state under the act of ——, having practiced medicine fifteen years prior to the above date. He became a member of the pharmaceutical association by sending that body $1. He is also on the staff of the St. Luke's Hospital, Niles, Mich., for the certificate of which he paid $10. C. Y.

——— —— —— co febuery th 10, 1884.

to th ko jug of th kort
of ———— Co ———.

Thys iz too sertafi tht i Hav Maid A fisikal Exam Of Willum D—— & find his Fisikal Helth vry week. he has skrofion ditis & asmos ditis his harte is week & his blud Dont hav Kurrent Flo thro arters, I find he's Rupert in Grine and, and Abdom. his mind Wavers and he has Hall Lucy-nations and is Esy skert and he dont no howe too wurk kase His minde iz incent and i konsider hym A Fit subjick fer Silum

Dr. — — ————, md. p.m, m.p.s.

Our correspondent explains that "skrofion ditis" means scrofulous diathesis; "asmos ditis," asthmatic diathesis; "incent," insane; "arters," arteries; "Rupert," ruptured; "p.m," postmaster; "m.p.s.," member of pharmaceutical association. In this connection we will also quote a letter received by Dr. W. F. Morrow, secretary of the Missouri State Board of Health.

Dear Sir, I rite you these lines few lines to find out the requirements to Practis Medison in the state of Missouri i am a man that Thurruly understand dease. Lokate Dease By the appearance of the Tongue and other sins and the Different stages in the same manner also the Different Treatments in the Different stages. Thurruly understand all Kinds of Feavers, Inflemarity Deases in their Different forms, the Different Treatment as the Forms calls for also varioius Different affections of the Kidneys and their Different Treatments, also Different forms of Rumatic affections in their Different Tipes. Also Heart affections of various Forms as They appere and their Treatment also Dease of the Nearves, Fits of all carecters arising from the Brain Nerves and Mussels and their Different Treatments, also the many Different affections of the Throat such as Laringitas Diptheria and all other affections, Lung Troubles and all other Deases to numerous to mention. I received My Knowledge of Dease and the Practis of Medison under My Frends they were doctors. They Practese with the Benefit of Both Schools and that is what i have and thirty years instruction from a practice of sixty years. Please rite me.

IMMUNITY AND PHAGOCYTOSIS.

MILWAUKEE, WIS., Jan. 12, 1905.

To the Editor:—Please tell me where I can get some recent papers, in the English language, on "phagocytosis." I have Metchnikoff's latest article on that work in German, but am unable to translate it. Is there an English translation? Any recent article on "Immunity and Susceptibility" will probably answer my purpose as well if the theory of phagocytosis is well discussed.

DR. J. E. BINGHAM.

ANSWER.—Consult the special article on "Immunity," which begins in this issue of THE JOURNAL, page 294. The work of Metchnikoff on "Immunity in the Infectious Diseases," 1901, is the most authoritative and comprehensive treatise on the subject of phagocytosis. S. G. Binnie recently translated this work into English (The Macmillan Company, New York, 1904). Advances of the greatest importance in the study of phagocytosis have been made recently in England by Wright and Douglas (Proc. of the Royal Soc., London, 1903, vol. 72, p. 357; Ibid., 1904, vol. 73, p. 128; *Lancet*, London, 1904, vol. 2, p. 1138; *Brit. Med. Jour.*, 1902, vol. 1, p. 73). The work of Wright and Douglas has been extended in important particulars in this country by Hektoen and Ruediger (*Jour. of Infectious Diseases*, 1905, vol. 2, No. 1). See also: Wesbrook, "Phagocytosis," *Northwest Lancet*, 1903, vol. 23, pp. 182-184 (Minneapolis). Our correspondent can certainly get the article he refers to translated in Milwaukee; if not we shall be glad to have it done for him.

ESTIMATED EXPENSES TO PORTLAND.

CINCINNATI, Jan. 17, 1905.

To the Editor:—Will you kindly let me know what the probable expense of the trip to Portland for the next session of the American Medical Association will be, as I would like to have this and make my plans accordingly? H. W. B.

ANSWER.—The expenses of the trip will vary with the individual and his habits. From Cincinnati the railroad fare for the round trip will be about $60; sleeping car, double berth, both ways, $28; meals ($1 each), both ways, $20; hotel expenses at Portland, five days at $5, $25, or a total of $133. Of course, if one desires to be economical, these expenses can be reduced. By "doubling up," $14 can be deducted from the sleeping car expenses, or even more reduction is possible by taking a tourist sleeper. The dining car service is usually *a la carte*, and the average meal can be reduced below $1. Hotel accommodations can be obtained at much less than $5. These figures are based on a trip direct to Portland and return, without stopping on the way. We doubt if any will make such a long trip without taking advantage of some side excursion, and the expenses of this, of course, each individual must estimate for himself.

THE X-RAY IN PSORIASIS.

CAMBRIA, WIS., Jan. 13, 1905.

To the Editor:—1. What benefit, if any, is the *x*-ray in the treatment of psoriasis? 2. What number of exposures should be given in an average case of long standing before a noticeable improvement can be hoped for? 3. Are there any known cases recorded in which cures have been effected by the use of the *x*-ray? C. E. S.

ANSWER.—1. Psoriasis can be cleaned up with the *x*-ray; the treatment has been given a thorough trial by dermatologists, with very satisfactory results. 2. The second question can not be answered in the form in which it is propounded. The number of exposures required depends entirely on the quantity of *x*-rays used in the exposure. It is not necessary usually to carry the exposures to the point of producing any reaction in order to get rid of a patch of psoriasis. 3. Numerous references to recorded cases will be found in the text-books on *x*-ray work, under psoriasis; for example, Pusey & Caldwell, and Williams.

BOOKS ON DIAGNOSIS BY THE MICROSCOPE.

LA AURORA., PUEB., MEX., Jan. 15, 1905.

To the Editor:—What is the best book on laboratory diagnosis, including technic of staining, preparation of stains and use of the microscope in making such diagnoses? B. W. GREEN, M.D.

ANSWER.—Simon's "Clinical Diagnosis" (Lea Bros.); Lee's "Vade Mecum" (Blakiston); Oertel's "Medical Microscopy" (Blakiston); Mallory and Wright's "Pathologic Technique" (Saunders); Ewing's "Clinical Pathology of the Blood" (Lea Bros.). These can be ordered from any bookseller.

Marriages.

WILLIAM EARL HAMLIN, M.D., to Miss Fay Voohers, both of Pocahontas, Ark.

ANDREW J. WALLS, M.D., to Miss Ida Smith, both of Lonoke, Ark., January 4.

JOSEPH WEINBERG, M.D., to Miss Helen G. Kelly, both of Brooklyn, January 2.

CLARENCE E. APPLE, M.D., to Miss Emma P. Crowe, both of Philadelphia, January 8.

CHARLES F. DARNALL, M.D., to Miss Ona Parkhill, both of Llano, Texas, January 4.

JOSEPH DRIES, M.D., to Miss Marie Altmeier, both of Milwaukee, Wis., January 11.

J. HARRY CRAWFORD, M.D., to Miss Mary E. Madden, both of Castlewood, S. D., January 1.

JOHN H. MARTIN, M. D., to Miss Marie Glidden, both of Centerville, S. D., at Parker, S. D.

C. C. HATFIELD, M.D., Kingston, Ohio, to Miss Maud M. Grim of Columbus, December 28.

WILLIAM A. STARNES, M.D., to Miss Callie Barrow Torbett, both of Atlanta, Ga., January 11.

GEORGE S. EDMONSON, M.D., Clinton, Ill., to Miss Della B. Jones of Thawville, Ill., January 4.

W. W. LUCAS, M.D., New Washington, Ohio, to Miss Goldie Staley of Sidney, Ohio, December 25.

HALBERT F. NEAL, M.D., Meridian, Idaho, to Miss Grace Andrews of Peru, Neb., December 28.

EDWARD DANFORTH, M.D., New York City, to Miss Helen Mattice of Gilboa, N. Y., January 18.

OLIVER S. REILEY, M.D., Red Oak, Iowa, to Mrs. Estelle Whipple of Belvidere, Ill., January 17.

READDING LLOYD WILLIAMS, M.D., to Miss Eleanor Magdalen Henke, at Las Vegas, N. M., January 10.

ISAAC MARION BURNSIDE, M.D., to Miss Jessie May McDonald, both of Highmore, S. D., January 10.

SIDNEY J. HATFIELD, M.D., Indianapolis, to Miss Calhoun Peckinpaugh of Alton, Ind., December 28.

PRATHER B. CURLIN, M.D., Hickman, Ky., to Miss Ruth Seates of Union City, Tenn., January 13.

WILLIAM RUSSELL JONES, M.D., Richmond, Va., to Miss Jane Taylor Fisher of Norfolk, Va., January 6.

ANDREW R. G. SMITH, M.D., North Whitefield, Maine, to Mrs. Maude Allen of Jefferson, Maine, December 31.

JAMES HENRY FERRELL, M.D., Woodlawn, Ala., to Miss Marion Lucile Edwards of Sylacauga, Ala., January 25.

AURAL ALVA SANDY, M.D., Washington, Iowa, to Miss Blanche May Foshier of Harvey, Iowa, January 18.

WINFRED MORGAN HARTSHORN, M.D., New Haven, Conn., to Miss Edith May Lieb of New York City, January 11.

AUGUSTUS W. THOMPSON, M. D., Mineral Wells, Texas, to Miss Estelle Johnson of Jackson, Miss., January 11.

RUTHERFORD B. IRONES, M.D., San Francisco, to Miss Georgia E. Dow of San Diego, Cal., in Los Angeles, January 12.

BENJAMIN AUSTIN CHENEY, M.D., New Haven, Conn., to Miss Lillian Clark Farrel of Ansonia, Conn., January 11.

ALBERT RALSTON MATHENY, M.D., Pittsburg, Pa., to Miss Florence Belt Kitzmiller of Hawkins Station, Pa., January 24.

CHARLES A. HAUBER, M.D., Walla Walla, Wash., to Miss Elletta Lydia Wiltfi of San Jose, Cal., at San Francisco, December 31.

PERCY FITZGERALD MCMURDO, M.D., acting assistant surgeon United States Navy, Charlotteville, Va., to Miss Genevieve Le Duc of Philadelphia, January 11.

Deaths.

Thos. **H. Manley, M.D.** New York University, New York City, 1875, member of the Mississippi Valley Medical Association; New York Academy of Medicine, New York County Medical Society; professor of surgery and surgical pathology New York School of Clinical Medicine; visiting surgeon to Harlem and Metropolitan Hospitals, died from pneumonia at his home in New York City, January 13, aged 54.

Albert G. Carr, M.D. Bellevue Hospital Medical College, New York City, 1870, formerly surgeon of the North Carolina State Troops; first vice-president and treasurer for eight years of the Medical Society of the State of North Carolina; president of the Durham County Medical Society, committed suicide while despondent, by shooting himself at his home in Durham, January 13, aged 54.

Josiah Peltz, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1867, a member of the American Medical Association, Medical Society of the State of Pennsylvania and Philadelphia County Medical Society, died at his home in Philadelphia from valvular heart disease following a severe attack of influenza, January 13, aged 62.

Charles H. Norred, M.D. St. Louis College of Physicians and Surgeons, 1865; Jefferson Medical College, Philadelphia, 1886; surgeon of the Seventh Illinois Volunteer Cavalry in the Civil War; special quarantine officer of Minneapolis during the smallpox epidemic of 1900, died at the Landour Hotel, Minneapolis, January 11, a few days after an operation.

Emmet Perdue, M.D. Marion-Sims College of Medicine, St. Louis, 1896, surgeon to the North American Coffee Company and Carbon Lumber Company; deputy health officer of Carbon County, Wyo., was shot through the back of the head and killed while in bed at his father-in-law's house near Richmond, Mo., January 18.

Peter B. M. Miller, M.D. Royal College of Surgeons, Edinburgh, Scotland, 1858, surgeon in the British army in India for ten years, a practitioner in Australia and New Zealand; since 1882 a resident of Seattle, Wash., died at his home in that city, December 2, from cancer of the mouth, after an illness of four years, aged 69.

Duncan Reid, M.D. Rush Medical College, Chicago 1878, a member of the American Medical Association; for two years a self-supported medical missionary on the west coast of Africa, died at his home in New Hampton, Iowa, January 11, from valvular heart disease—aortic stenosis—aged 58.

Louis E. Foudruat, M.D. Faculté de Médecine, Montpellier, France, 1864, surgeon in the army of Maximilian in Mexico; coroner and parish physician for twenty-four years, and president of the local board of health for ten years, died at his home in St. Bernard, La., after a long illness, aged 63.

Arthur O'Leary, M.D. Jefferson Medical College, Philadelphia, 1866, while depressed from financial difficulties and suffering from injuries received in a street-car accident, ended his life, January 18, by shooting himself through the heart at his home in Cleveland, Ohio, aged 75.

Henry R. McComb, M.D. Rush Medical College, Chicago, 1881, for two years mayor of Shawano, Wis., and for four years county judge of Shawano County, died at his home in Shawano, January 10, from nephritis, after an illness of several years, aged 50.

William J. Gautier, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1850, for half a century a practitioner of Tuskogee, Ala., died at his home in that city, January 13, from heart disease, after an illness of one week, aged 79.

William Aills, M.D. Tulane University of Louisiana, Medical Department, 1853, surgeon of the Sixth Mississippi Infantry, C. S. A., and brigade surgeon in the Civil War, died at his home in Steen's Creek, Rankin County, Miss., January 14, aged 80.

Odelia Blinn, M.D. Woman's Medical College of Pennsylvania, Philadelphia, 1868, formerly prominent in professional and social circles in Chicago, died at the Cook County Infirmary, Dunning, January 20, after an illness of six years, aged 60.

George W. Harrison, M.D. Rush Medical College, Chicago, 1881, of Ashland, Wis., once a member of the Wisconsin State Board of Medical Examiners; second mayor of Ashland, died January 12 at Grand Rapids, Mich., from heart disease, aged 55.

Leonard J. Gordon, M.D. Bellevue Hospital Medical College, New York City, 1875, director of the Jersey City Public Library, died at his home in Jersey City from heart disease, January 17, after an illness of three months, aged 60.

Stephen M. Switzer, M.D. University of Vermont Medical Department, Burlington, 1880, died at his home in Bradford, N. Y., January 7, from paralysis following diphtheria, after an illness of several weeks, aged 56.

Daniel O. Polin, M.D. Medical Department of the St. Louis University, 1851, president of the Washington County (Ky.) Medical Society, died at his home in Springfield, January 14, from heart disease, aged 75.

John R. Howes, M.D. Medical College of Ohio, Cincinnati, 1879, of Las Comas, N. Mex., representative in the Minnesota Legislature in 1884 and 1885, died suddenly in El Paso, Tex., January 10, aged 56.

John McJunkins, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1879, died at his home in Tuccoa, Ga., January 10, from nephritis, after an illness of two months.

Franklin Byington, M.D. University of Georgetown, Washington, D. C., 1858, surgeon in the Confederate service during the Civil War, died at his home in Charlestown, W. Va., January 14, aged 66.

James Leslie Harding, M.D. Starling Medical College, Columbus, Ohio, 1883, died at his home in Blairsville, Pa., January 10, from cerebral hemorrhage, after an illness of several days, aged 45.

Edward D. Bernreuter, M.D. Missouri Medical College, St. Louis, 1880, a member of the American Medical Association, died at his home in Mount Olive, Ill., December 9, aged 46.

Charles E. Oatis, M.D. Transylvania University Medical Department, Lexington, Ky., 1846, died at his home in Hazlehurst, Miss., January 6, from cerebral hemorrhage, aged 81.

James D. McKnight, M.D. Memphis (Tenn.) Hospital Medical College, 1882, sheriff of St. Francis County, Ark., died suddenly at his home in Forrest City, January 8, aged 62.

J. P. Lowery, M.D. Vanderbilt University Medical Department, Nashville, 1879, died recently at his home in Renner, Texas, and was buried at Corsicana, Texas, January 15.

Michael R. Kelly, M.D. Rush Medical College, Chicago, afterward prominent as an educator, died at his home near Morrison, Ill., recently, and was buried January 7, aged 84.

Gustavus Nelson, M.D. Louisville Medical College, 1893, died at his home in Trufant, Mich., January 12, from hemorrhage of the stomach, after an illness of three days, aged 50.

John S. Smalley, M.D. Ohio Medical University, Columbus, 1893, died at his home in Newark, N. J., January 8, from nephritis, after an illness of three months, aged 49.

S. R. Hubbard, M.D. University of Nashville Medical Department, 1862, died at the home of his son in St. Augustine, Fla., January 1, after a long illness, aged 70.

James H. Cossaart, M.D. New York, 1870, of Otego, N. Y., died at a hospital in New York City, January 2, four days after an operation for cholelithiasis, aged 58.

John H. Donaldson, M.D. Starling Medical College, Columbus, Ohio, 1881, died at his home in Gore, Ohio, from cerebral hemorrhage, after an illness of a year, aged 56.

Robert B. Dupree, M.D. Bellevue Hospital Medical College, New York City, 1874, died at his home in Marlin, Texas, January 11, after a prolonged illness, aged 54.

William H. Ensminger, M.D. Jefferson Medical College, Philadelphia, 1871, died suddenly at his home in Chicago, January 17, from cerebral hemorrhage, aged 61.

Seth R. Beckwith, M.D. Ohio, 1853, of New York City, physician to the late President Garfield, died at Atlantic City, January 20, after an illness of a year, aged 72.

S. Cordelia Enos, M.D. Illinois, 1891, died at her home in Jerseyville, Ill., January 17, from injuries sustained in an explosion of gasoline the day before, aged 60.

Thomas M. Johns, M.D. Rush Medical College, Chicago, 1877, died at his home in Taylorsville, Ill., from liver disease, after a long illness, aged 58.

John B. Adams, M.D. Medical College of Alabama, Mobile, 1898, died at his home in Clanton, Ala., January 10, after amputation of both feet.

Robert P. Lake, M.D. University of Maryland School of Medicine, Baltimore, 1849, died at his home near Locust Dale, Va., recently, aged 83.

John A. Hamilton, M.D. Jefferson Medical College, Philadelphia, 1876, died at his home, Pollock, La., January 11, aged 70.

Thomas N. Livesay, M.D. Rush Medical College, Chicago, 1868, died at his home in Patoka, Ill., January 10, aged 68.

Ewing Peyton Biggs, M.D. Cincinnati, 1878, died at his home in Lutesville, Mo., January 4, from heart disease, aged 52.

Gustave Schmidt, M.D. University of Breslau, Germany, 1838, died at his home in Ingraham, Ill., December 1, aged 88.

Samuel G. Weagley, M.D. Years of Practice, Illinois, 1878, died at his home in Jacksonville, Ill., December 7, aged 78.

A. G. Wertman, M.D. Baltimore University School of Medicine, 1898, died at his home in Effort, Pa., January 18.

Jesse Chewning, M.D. St. Louis Medical College, 1863, died at his home in Canton, Ill., Sept. 21, 1904, aged 65.

George H. Winkelmann, M.D. Cincinnati College of Medicine and Surgery, died in Chicago, December 19, aged 52.

F. Virgil Westfall, M.D. Medical College of Ohio, Cincinnati, 1889, died at Dahlgren, Ill., Nov. 23, 1904, aged 49.

John Pearson Iliff, M.D. Pennsylvania, 1883, died at his home in Philadelphia, January 11, aged 54.

Jeremiah Phillips, M.D. Cincinnati, 1855, died at his home in Olney, Ill., Oct. 16, 1904, aged 88.

Miscellany.

The Cytology of General Paresis.—Fischer reports two cases of paresis, of which the diagnosis was unquestioned, which were examined as to the condition of their blood cells by lumbar puncture during life with strikingly different results. In one there was almost entire absence of lymphocytes, in the other marked lymphocytosis. The autopsy in both cases revealed typical paretic meningeal infiltration. The conclusion he draws, in the *Präger med. Woch.*, is that we can not determine by the cytologic findings whether or not the meninges are specially inflamed, but only how strongly and how far they are infiltrated and to some extent whether the process is slow or rapid. Of course, the quantitative determination of the cells of the cerebrospinal fluid is only an approximate one. Another point noted in his observation is that the cells found by lumbar puncture are either identical with or of the same type as those in the meninges, and probably originate in the meninges, and we must assume a downward flow from the brain carrying them into the lower spinal region. Infiltration of the spinal meninges is an accompaniment of this condition even though the spinal cord itself may apparently be intact.

Overpressure in School.—Commenting on the scarcity of cases of chorea in the summer and fall, and the abundance of such cases seen in the late winter and spring, Dr. La Fetra, in the *Archives of Pediatrics*, attributes this condition in great measure to overwork in school. During October or November it is often difficult, even in a large ambulatory service, to collect sufficient cases for a clinical lecture on the various phases of chorea. As the seasons proceed, the cases increase slowly in number until about March or April, when there is a sudden rise in the number of those affected. Pale, thin, ambitious children, the majority of them girls, then throng the nervous and pediatric clinics in all stages of the disease. Probably the most important exciting cause, at least in those cases that are not clearly rheumatic, is excessive stimulation of the cortical cells of the brain. This results in the gradual supervention of undernutrition and consequently in overexcitability of these cells. The nature of the stimulation varies. It may be the social excitement of children's parties, long waking hours, a bad fright, great grief, strenuous games, too many or too long school periods, home study at night, or the strain and anxiety of class recitations; or, it may be improper food or indigestion; at any rate, the result is much the same. The child's nervous system becomes debilitated, loses its power of inhibition, and manifests the overactivity of weakness. St. Vitus' dance is cited merely as one of the extreme types of this nervous exhaustion. In the treatment it is pointed out that careful attention to the number and character of the different subjects, the length of the lessons and the time of study is necessary. Change of study or the alternation of physical exercise, games or manual training with mental effort is desirable; but it must be remembered that change of work, or change from work to play is not rest, although the result may be added interest in the new occupation. Change of employment is not recreation; for all effort fatigues. Children that need especially to be watched during the school year are those of alcoholic, tuberculous or neurotic family history, those that are anemic, those that are growing rapidly, especially girls at the period of prepubertal acceleration in growth, from 11 to 13 years, and those that have recently suffered from whooping cough, measles and diphtheria. Only by the exercise of caution in their school work can such children be prevented from suffering the ill effects of overpressure. Persistent headaches, not due to eye defects, disturbed sleep, morning languor and loss of appetite, are warning symptoms; if they persist after modification of the school régime, the child should be withdrawn from school for three or four weeks, or until all signs of nervous exhaustion have disappeared. Disregard of these early symptoms risks the more serious results of overpressure, such as chorea, neurasthenia, hypochondriasis, hysteria, and even epilepsy and insanity in patients of neurotic heredity.

State Boards of Registration.

COMING EXAMINATIONS.

New Hampshire State Boards, University Club, Concord, February 1-2. Regent, Henry C. Morrison, Concord.

Board of Medical Registration for Vermont, Burlington, February 7, 8 and 9. W. Scott Nay, M.D., secretary, Underhill.

Nebraska State Board of Health, State House, Lincoln, February 8-9. George H. Brash, M.D., secretary, Beatrice.

Kansas State Board of Medical Registration and Examination, Topeka, February 14-15. Secretary, G. F. Johnston, M.D., Lakin.

California December Report.—Dr. C. L. Tisdale, secretary of the Board of Medical Examiners of the State of California, reports the written examination held at San Francisco Dec. 6, 1904. The number of subjects examined in was 9; total number of questions asked, 90; percentage required to pass, 75. The total number examined was 40, of whom 24 passed and 16 failed. The following colleges were represented:

College.	PASSED.			Year Grad	Per Cent.
Cooper Medical College	(1904)	78.8,	82.1,	82.8, 84.	84.8
College of P. and S., Chicago	(1895)	86.1,	(1902)	75, (1904)	76.8
University of Michigan	(1903)	75.7,			85.3
Rush Medical College	(1901)				87.6
Howard Medical College	(1902)				83.3
Jefferson Medical College	(1902)				78.1
McGill University, Canada	(1904)				77.6

University of Missouri	(1904)		75
Hahnemann Med. Coll., San Francisco,	(1903)	75.7 (1904) 82.1,	82.6
Northwestern University	(1904)		82.2
University of California	(1904)		75
College of Med. and Surg., Minnesota	(1900)		85
Gross Medical College	(1902)		87.7
Starling Medical College	(1898)		82.1
Chicago Homeo. Med. Coll	(1888)		80.4

FAILED.

Cooper Medical College	(1903)		65
University of Michigan	(1890)	62.3,	67
University of Berlin, Germany	(1899)		64.1
Rush Medical College	(1882)		69.3
Jefferson Medical College	(1902)	68.1, (1893)	36.4
Tufts Medical College	(1902)		59.2
Marion Sims-Beaumont Med. Coll	(1903)		67.7
Medical College of South Carolina	(1897)		70.4
Bellevue Hospital Med. Coll	(1889)	69.7, (1877)	66.4
University of Virginia	(1891)		62.6
University of Louisville	(1890)		68.5
College of P. and S., Chicago	(1901)		71.6
College of P. and S., San Francisco	(1904)		70.6

Oklahoma December Report.—Dr. E. E. Cowdrick, secretary of the Territorial Medical Examining Board of Oklahoma, reports the examination held at Guthrie, Dec. 2-8, 1904. The number of subjects examined in was 9; total number of questions asked, 85. No percentages are assigned by this board, but each candidate is required to attain a grade of 66.6 or over in each branch. The total number examined was 19, of whom 5 passed and 14 failed. The following colleges were represented:

PASSED.

University Medical College, Kansas City, Mo. (1904), had 1 representative; Northwestern University (1892), 1; Hahnemann Medical College, Chicago (1891), 1; Illinois Medical College (1904), 1, and Medical Department Drake University (1897), 1.

FAILED.

The following colleges had each one representative: American Medical Missionary College, Chicago (1903); Kansas City Medical College (1897); Baltimore University (1904); Baltimore Medical College (1896); College of Physicians and Surgeons, Baltimore (1885); University of Vermont (1904); University of Medicine, Kansas City, Mo. (1884); American Medical College, St. Louis (1904); Hospital Medical College, Kansas (1893); University of Michigan (1872); Rush Medical College (1900); Hospital College of Medicine, Kentucky (1889), and Barnes Medical College (1901).

Nebraska November Report.—Dr. George H. Brash, Beatrice, secretary of the Nebraska State Board of Health, reports the written examination held at Lincoln, Nov. 9-10, 1904. The number of subjects examined in was 8; total number of questions asked, 80; percentage required to pass, 75. The total number examined was 8, all of whom passed. The following colleges were represented:

PASSED. College.	Year Grad.	Per Cent.
Kentucky School of Medicine	(1904)	81.1
Kentucky Univ. Med. Dept	(1904)	78.1
Barnes Medical College	(1901)	78.1
Northwestern University	(1904)	85.1
Hahnemann Med. Coll., Chicago	(1882)	80.8
Baltimore Medical College	(1898)	86
Lincoln Medical College	(1902)	81.2
Creighton Medical College	(1900)	*77.1

*Second examination.

Maryland June, September and October Reports.—Dr. Joseph H. Garrison, secretary of the Board of Medical Examiners of Maryland, representing the Maryland State Homeopathic Medical Society, reports the examinations held at Baltimore, June 7-8, September 30, and Oct. 26, 1904. The number of subjects examined in was 9; total number of questions asked, 70; percentage required to pass, 75.

At the June examination the total number examined was 13, all of whom passed. The following colleges were represented:

Southern Homeopathic Med. Coll.,	(1904)	77.4, 78.7, 81, 82.7, 83.7, 86.4, 88.1, 88.5, 88.7, 88.8, 92.5, 93.1.
Hering Medical College, Chicago	(1904)	93.7

The general average of all representatives of the Southern Homeopathic Medical College was 85.8.

The examinations held September 30 and October 26 were oral. Only two persons were examined, both of whom passed.

Hahnemann Med. Coll., Philadelphia	(1904)	75, 75

Ohio December Report.—Dr. Frank J. Winders, secretary of the Ohio State Board of Medical Registration and Examination, reports the written examination held at Columbus, Dec. 13-15, 1904. The number of subjects examined in was 9; total number of questions asked, 90; percentage required to pass, 75. The total number examined was 42, of whom 40 passed and 2 failed. The following colleges were represented:

PASSED. College.	Year Grad.	Per Cent.
Columbian Univ., Washington, D. C.	(1904)	91
Univ. of Virginia Med. Dept.	(1900) 94, (1902)	83
Univ. of Moscow, Moscow, Russia	(1899)	90
Univ. of Munich, Munich, Germany	(1899)	82
Univ. of Buffalo	(1895)	85
Ohio Medical University	(1904)	91, 79, 75
Starling Medical College	(1904) 79, 78, 86, (1903)	88
Hospital Coll. of Med., Louisville	(1903)	81
Detroit Medical College	(1887)	77
Howard Univ., Washington, D. C.	(1904)	78, 88, 84
Western Reserve Univ.	(1883)	83
Imperial Alexander Univ., Helsingfors, Finland	(1903)	80
Kentucky School of Medicine	(1904)	82
Univ. of Louisville	(1904)	90
Barnes Med. Coll., St. Louis	(1899)	83
Baltimore Med. Coll	(1904)	91
Tufts Med. School, Boston	(1903)	84
Med. Coll. of Ohio	(1903)	88
McGill University, Montreal	(1895)	81
Cleveland Homeo. Med. Coll	(1904)	81, 80, 79
Eclectic Med. Coll., New York	(1899)	81
Univ. of Toronto, Ont., Can	(1901)	94
Univ. of Louisville	(1904)	80
Univ. of Southern California, Los Angeles	(1903)	94
Coll. of P. and S., Baltimore	(1902)	84
Jefferson Med. Coll., Philadelphia	(1903)	91, 84
Rush Med. Coll., Chicago	(1900)	86
Long Island Hospital Coll	(1902)	90
Univ. of Michigan	(1890)	78

FAILED.

Toledo Med. Coll	(1904)	73
Eclectic Med. Inst., Cincinnati	(1904)	72

Association News.

The Portland Session.

Dr. Kenneth J. Mackenzie, Chairman of the Committee on Arrangements, writes concerning arrangements for the session of the American Medical Association in Portland:

HOTEL ARRANGEMENTS have been placed in the hands of a committee, at the head of which is Dr. William Jones, and consisting of the following: Drs. R. C. Coffey, W. H. Skeene, C. H. Wheeler, A. E. Mackey and Mr. H. C. Bowers (by courtesy).

Mr. H. C. Bowers, the manager of the Hotel Portland, has undertaken to provide accommodations for any number that will attend the session. Mr. Bowers has informed the committee that he can readily take care of 4,000 or 5,000 visitors, and those who contemplate coming are requested to communicate with him and to make contracts for their accommodations without any delay. In anticipation of the Lewis and Clark Fair, the success of which is now an assured fact, the hotel and room capacity of the city has been greatly increased by 7,000 rooms from last year.

The management of the Lewis and Clark Fair have made arrangements with Mrs. McCready, who managed the American Inn at the St. Louis Fair, to build, within the city limits and within convenient distance of the center of the city, a hotel with a capacity of over 500 rooms. It will be better built than any structure of the kind that was in use in St. Louis, and a great many of the rooms will be furnished with baths. A large number of moderate sized but high-class hotels are under construction.

EXCURSIONS are being arranged by the local committee to take place on the Columbia River, which will enable the visitors to witness the choicest scenery of the Pacific Coast, including the unrivaled mountain scenery of the Cascade Range. Plans are being considered for excursions to Alaska and to the Orient. These arrangements, of course, will depend on a sufficient number of visitors announcing their plans in advance, indicating their intentions of making these excursions.

The most admirable arrangements have been made for the Section sessions.

The Public Service.

Army Changes.

Memorandum of changes of stations and duties of medical officers, U. S. Army, week ending Jan. 21, 1905:

Turnbull, Wilfrid, asst.-surgeon, advanced to rank of captain, to date from Jan. 16, 1905.

Egbert, R. G., surgeon, left from detached duty at Fort D. A. Russell, Wyoming, on 15 days' leave of absence.

Sweazey, Verge E., asst.-surgeon, reported at U. S. Army General Hospital, Washington Barracks, D. C., for treatment, from leave of absence.

Smart, Charles, brigadier general, retired as colonel and asst.-surgeon general, and advanced to brigadier general on retired list.

Hess, John H., examining and supervising dental surgeon, left West Point, N. Y., January 16, for San Francisco, Cal., en route to Philippine service.

Sparrenberger, Frederick H., contract surgeon, returned January 16 to Fort Mott, N. J., from leave of absence.

Wythe, Stephen, contract surgeon, returned January 10 to San Francisco, Cal., from leave of absence.

Foulkes, Bruce, contract surgeon, granted an extension of one month to his leave of absence.

Reitz, Hugo C., dental surgeon, returned January 17 to duty at Fort Sheridan, Ill., from leave of absence.

Ware, William H., dental surgeon, ordered to visit in succession, to render professional service, Fort Wingate, N. M.; Fort Apache, Ariz.; Whipple Barracks, Ariz.; Fort Huachuca, Ariz., and Fort Grant, Ariz.

Truax, Jesse P., contract surgeon, left Fort Lawton, Wash., January 14 for his proper station, Fort Ward, Wash.

Long, Charles J., dental surgeon, ordered to proceed at the expiration of his present leave of absence to Fort Snelling, Minn., for duty.

Hussey, Samuel W., dental surgeon, relieved from duty in the Department of Dakota and ordered to San Francisco, Cal., to sail March 1 for Philippine service.

McAlister, John A., dental surgeon, relieved from duty in the Philippine Division March 10 and ordered to the United States for assignment.

Millikin, John D., dental surgeon, relieved from duty in the Philippine Division April 14 and ordered to the United States for assignment.

Casaday, George H., dental surgeon, relieved from duty in the Philippine Division April 21 and ordered to the United States for assignment.

Bernheim, Julien R., dental surgeon, relieved from duty in the Philippine Division May 27 and ordered to the United States for assignment.

Navy Changes.

Changes in the medical corps, U. S. Navy, for the week ending Jan. 21, 1905:

Pleadwell, F. L., surgeon, detached from the Naval Dispensary, Washington, D. C., January 31, and ordered to duty at the Naval Hospital, Yokohama, Japan, sailing from San Francisco, Cal., February 14.

Plummer, R. W., P. A. surgeon, detached from the Naval Hospital, San Juan, P. R., and granted leave of absence until February 15.

Garton, W. M., P. A. surgeon, detached from the Naval Hospital, Yokohama, Japan, and ordered home.

Butler, C. S., P. A. surgeon, detached from the *Constellation*, January 18, and ordered to the Naval Hospital, San Juan, P. R., sailing from New York, N. Y., January 21.

Stuart, A., asst.-surgeon, detached from the Naval Hospital, San Juan, P. R., and ordered to Washingtoon, D. C., February 15 for examination for promotion, and thence home and to await orders.

Rodman, S. S., P. A. surgeon, ordered to the *Pensacola*.

Sellers, F. E., A. A. surgeon, detached from the *Gloucester* and ordered to the *Franklin*.

Alfred, A. R., surgeon, detached from the *Solace* and ordered to the Naval Station, Cavite, P. I.

McLarty, C., pharmacist, detached from the *Solace* and ordered to the Naval Hospital, Yokohama, Japan.

Public Health and Marine-Hospital Service.

Official list of the changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine Hospital Service for the seven days ending Jan. 18, 1905:

Greene, J. B., P. A. surgeon, seven days' extension of leave of absence from January 7, granted by Bureau telegram of January 4, revoked.

Townsend, W., A. A. surgeon, Department letter of Nov. 22, 1904, amended to grant A. A. Surgeon Townsend leave of absence for twelve days, instead of 30 days, from Dec. 15, 1904.

BOARD CONVENED.

Board convened to meet at Washington, D. C., Jan. 19, 1905, for the physical examination of an applicant for the position of second assistant engineer, Revenue Cutter Service. Detail for the Board: Asst.-Surgeon General G. T. Vaughan, chairman; Asst.-Surgeon A. J. McLaughlin, recorder.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon General, Public Health and Marine Hospital Service, during the week ended Jan. 20, 1905:

Alabama: Mobile, Dec. 19-Jan. 9, 3 cases from vessels in port.
Arkansas: Fort Smith, Dec. 10-17, 1 case.
Illinois: Chicago, Jan 8-14, 16 cases, 1 death; Danville, Jan. 8-14, 2 cases; Peoria, Dec. 1-31, 7 cases.
Kansas: Topeka, Jan. 8-14, 1 case.
Louisiana: New Orleans, Jan. 8-14, 7 cases.
Massachusetts: Everett, Jan. 8-14, 3 cases, 1 death; Hyde Park, Jan. 8-14, 1 case from Steamship *Cymric*.
Massachusetts: Everett, Jan. 8-14, 3 cases.
Dec. 1-31, 1 death; Jackson Co., Dec. 1-31, 1 death.
Minnesota: Clay Co., Jan. 3-9, 1 case; Morrison Co., Jan. 3-9, 1 case; Otter Tail Co., Jan. 3-9, 8 cases; Rice Co., Jan. 3-9, 2 cases; St. Louis Co., Jan. 3-9, 3 cases; Todd Co., Jan 3-9, 3 cases; Wadena Co., Jan. 3-9, 5 cases.
Missouri: St. Louis, Jan. 8-14, 17 cases.
New York: New York, Jan. 8-14, 2 cases.
Ohio: Toledo, Jan. 10-17, 2 cases.
Pennsylvania: Homestead, Jan. 9-15, 1 case.
South Carolina: Georgetown, Jan. 1-14, 10 cases.
Tennessee: Memphis, Jan. 8-14, 2 cases; Nashville, Jan. 8-14, 4 cases.
Wisconsin: Milwaukee, Jan. 8-14, 8 cases.

SMALLPOX—FOREIGN.

Brazil: Para, Dec. 1-14, 54 deaths; Rio de Janeiro, Dec. 12-18, 102 cases, 34 deaths.
France: Lyons, Dec. 18-24, 1 case; Paris, Dec. 28-31, 14 cases, 4 deaths.
Great Britain: Hull, Dec. 25-31, 1 case; London, Dec. 25-31, 5 cases; Manchester, Dec. 25-31, 2 cases; Newcastle on Tyne, Dec. 25-31, 3 cases; Nottingham, Dec. 25-31, 2 cases.
India: Bombay, Dec. 14-20, 25 deaths; Calcutta, Dec. 10-16, 1 death; Karachi, Dec. 12-18, 4 cases.
Italy: Catani, Dec. 23-31, 2 deaths; Palermo, Dec. 18-24, 14 cases, 5 deaths.
Panama: Colon, Jan. 1-8, 1 case.
Spain: Barcelona, Dec. 21-31, 11 deaths.

YELLOW FEVER.

Brazil: Para, Dec. 1-14, 18 deaths.
Mexico: Coatzacoalcos, Dec. 28-31, 2 cases; Juchitan, Jan. 1-7, 1 case.
Venezuela: Maracaibo, Dec. 4-11, 1 case, 1 death.

CHOLERA.

India: Bombay, Dec. 14-20, 1 death; Calcutta, Dec. 10-17, 108 deaths.
Russia: Dshewat, Dec. 8-14, 264 cases, 203 deaths; Hedjuff Dec. 8-14, 177 cases, 152 deaths.

PLAGUE.

Arabia: Crater, Dec. 17-24, 43 cases, 28 deaths; Hedjuff (Plague hospitals), Dec. 17-24, 5 cases, 7 deaths; Shaikh Othman, Dec. 17-24, 7 cases, 3 deaths.
Chile: Iquique, Dec. 4-17, 2 cases, 2 deaths; Santiago, Dec. 2, 1 case.
Egypt: Port Said, Dec. 10-17, 1 case 1 death; Suez, Dec. 10-17, 1 case; Tukh District, Dec. 10-17, 1 case.
India: Bombay, Dec. 14-20, 102 deaths; Calcutta, Dec. 10-17, 15 deaths; Karachi, Dec. 12-18, 56 cases, 52 deaths.
Japan: Kobe, Dec. 16, 1 case.
Mauritius: Oct. 14-Nov. 3, 61 cases, 35 deaths.

Medical Organization.

Michigan.

ORGANIZATION IN MICHIGAN.—From a personal letter, dated January 23, received from Dr. Leartus Connor, chairman of the council of the Michigan State Medical Society, we quote the following: "Our Michigan council held its winter meeting last Friday. Work began at 8:30 a. m. and continued as rapidly as was possible till dark. We found ourselves ahead of last year in numbers and finances. Several knotty problems in different portions of our field had been solved pleasantly. Others are on the way to solution. The general tone of correspondence was higher than ever. But one complaining letter had been received during the past year. On the other hand, our advance has been small; several of our councilors had fainted with the work and wanted to give it up. Hence it was necessary to recharge them with enthusiasm, which was done, and they left determined to do better the coming year. Our limited time forbade a discussion of other than the necessary business and plan for the coming months. All this is better than I had anticipated. Five of the councilor districts have held district meetings, with profit to all in increasing enthusiasm and closer fellowship. Other district societies will be formed later."

Texas.

CENTRAL TEXAS (TWELFTH) DISTRICT MEDICAL ASSOCIATION.—The Central Texas Medical Association met at Waco, January 10 and 11 and reorganized on the standard plan as the Central Texas (Twelfth) District Medical Association, electing the following officers: President, Dr. Robert Alexander, Troy; vice-presidents, the presidents of the component county societies, and secretary-treasurer, Dr. John L. Burgess, Waco.

West Virginia.

GRANT, HARDY, HAMPSHIRE AND MINERAL MEDICAL SOCIETY.—At a meeting of 14 physicians of these counties, held at Keyser the first week of January, this society was organized with the following officers: Dr. Edgar H. Parsons, Piedmont, president; Drs. J. N. Judy, Petersburg, Grant Co., Robert W. Love, Moorefield, Hardy Co., George H. Thomas, Romney, Hampshire Co., and Lloyd L. Edgell, Keyser, vice-presidents; Dr. Percival Lantz, Alaska, secretary, and Dr. Monsell R. Bell, Keyser, treasurer.

Society Proceedings.

AMERICAN PUBLIC HEALTH ASSOCIATION.

Thirty-Second Annual Meeting, held at Havana, Cuba, Jan. 9-13, 1905.

The President, Dr. Carlos J. Finlay of Havana, in the Chair.

Addresses of welcome were delivered by Dr. Cancio, secretary of public instruction to President Palma, representing the Cuban government, and by Dr. Lincoln de Zayas, representing the medical profession of Havana.

President's Address.

After thanking the association for the great honor conferred on him in electing him president, Dr. Finlay referred to the first Havana yellow fever commission, which was established a quarter of a century ago and came from Washington. So well did this commission accomplish its object that he could readily trace back to its immediate influence the discoveries which led the way to ultimate success. He stated that the sanitary experience in Cuba during the last twelve months, both with regard to yellow fever and to smallpox, had been somewhat more eventful and at the same time more instructive than in the preceding two years. In the district of Havana, notwithstanding the admission of imported cases of yellow fever from foreign ports, not a single case, originating on the island, had been recorded. With the experimental proofs that they now possess that fomites *per se* were incapable of transmitting the disease, the inevitable conclusion must be that in the cases mentioned infected mosquitoes had been conveyed on floating bodies by the ebb-tide. The fight against tuberculosis must be maintained at all costs as the most important factor in mortuary statistics of large towns almost all over the world. The study of causes and prevention of infant mortality is one which affects Cuba not only with reference to infantile enteritis, but also with regard to tetanus neonatorum, the occurrence of which is coupled with unpardonable ignorance or neglect both on the part of parents and of the attendants at the birth of children. The control of milk supplies in large cities is closely connected with infantile mortality, for the methods best calculated to carry the former into effect should undoubtedly lessen the latter. Finally, the subject of sanitary agreement between adjoining nations has become of paramount importance since the recent advance made in our knowledge of the etiology of certain quarantinable diseases, of yellow fever in particular. Hence the advisability that European nations holding possessions in the American yellow fever zone be represented at the meetings of the association.

Officers Elected.

The following officers were elected for the ensuing year: President, Dr. F. F. Wesbrook, Minneapolis, Minn.; vice-presidents, Dr. Juan Guiteras, Havana, Cuba; Dr. F. Lopez, Mexico City, Mexico; Dr. Geo. MacDonald, Brandon, Manitoba; executive council: Drs. Marcus Haas, Memphis, Tenn.; C. V. Chapin, Providence, R. I., and Wm. C. Chapman, Toledo, Ohio; secretary, Dr. Chas. O. Probst, Columbus, Ohio (re-elected); treasurer, Dr. Frank W. Wright, New Haven, Conn. (re-elected). Boston was selected as the next place of meeting.

Purification of the St. Louis Water Supply By Coagulation and Sedimentation.

DR. C. A. SNODGRASS, St. Louis, said that from the year 1832, the time at which the first water works system of St. Louis was installed, until 1904, the water supply of St. Louis had been unsatisfactory, and that in a few months' time a complete transformation of the quality of the water had been secured by using ferrous sulphate and calcium hydroxid as a coagulant, followed by plain sedimentation. The present plant cost only $10,000. The plan of operation costs $4.50 less per million gallons than any other proposed plan. The exact and extensive chemical and bacteriologic data added to the physical properties proved conclusively that a water of a high degree of potability was being secured. The removal of suspended matter was shown to average 96.9 per cent., while the bacterial removal averaged 95 per cent. in many weekly analyses, showing an efficiency of 99 per cent. Mineral analysis showed that there was nothing left in the water that could be inimical to health. The death rate from typhoid during the last year has been materially lowered, but owing to the limited time of operation of the present system no deductions from this point of view were insisted on. Reports from engineers and manufacturers showed that the treatment given the St. Louis water supply was highly satisfactory to their interests. The author claimed that, with contemplated changes of a minor character, the expense of operation would be lowered and the efficiency increased.

MR. F. S. HOLLIS, New Haven, Conn., described a practical test of the copper sulphate method for the removal of germs from water supplies.

Report on Purification and Preservation of Water Supplies.

MR. GEORGE W. FULLER, New York, stated that the principle of the use of sulphate of copper in treating water supplies was not a new one, as it had been used for thousands of years. With reference to filtration, he said the number of cities in the United States with a population of 25,000 now using the filtration plan was about 8 per cent.; those which had filters under construction, 11 per cent.; those in which filters had been authorized, 20 per cent., and those in which filters were being considered as necessary, 31 per cent. Statistics and arguments were advanced in favor of filtration as a method of purifying water supplies of cities.

DISCUSSION.

DR. FRANK WARNER, Columbus, Ohio, stated that more attention should be given to the better protection of the watershed. This feature was either neglected or overlooked in connection with modern purification plants. This was especially true of pollution near the purification works, and the water should be delivered to the purification plant in as pure condition as possible before purification.

MR. H. W. CLARK, Boston, said that since the introduction of filtration at Lawrence, Mass., the city had increased in population from 45,000 to 75,000, and the percentage of deaths from typhoid fever had been materially reduced.

Report of Committee on Disinfection and Disinfectants.

PROF. F. C. ROBINSON, Brunswick, Maine, reviewed the more important literature on the subject during the past year, especially in the foreign journals. As to experiments on disinfecting railway cars by formaldehyd, the results showed that it was practically impossible to completely sterilize all parts by the vapor of formalin, but still the experimenters think that it is the most practical thing to employ for that purpose. They recommend 1,000 c.c. of the liquid formalin to each car, but, of course, the foreign cars are much smaller than those in use in the United States. As to chemical methods for sterilizing drinking water, V. B. Nesfield recommends the use of tablets made from 1½ grains bleaching powder and ½ grain sodium bicarbonate. He claims that these will each sterilize a pint of water in five minutes, or better, ten. He removes the paste of chlorin by adding a tablet of sodium sulphite. He claims that by such use the most foul river water can be made free from disease germs and palatable. The report called attention to the danger of the spread of infectious diseases through library and school books. It was recommended that the danger should be met as far as possible by notices in libraries calling attention to the advisability of handling books with clean hands, of not touching the hands to the mouth after handling books until the hands are washed and, in addition, submitting books much used to the action of formaldehyd vapor once in a while. Remarkable results have followed the occasional use of weak solutions of formaldehyd on the floors of schoolhouses—solutions so weak that they gave no disagreeable odor. Infectious colds and other dust-borne diseases were much lessened among the scholars. The committee believes that the occasional use of such solutions on floors and surfaces in dwell-

ing houses, as well as in public buildings, would do a great deal toward improving public health.

Sulphate of Copper with Lime to Destroy Mosquito Larvae.

DR. A. H. DOTY, New York, considered, first, the use of copper alone or in combination with lime for the destruction of mosquito larvæ; second, as a deodorant, and, third, as a disinfectant. He stated that in the destruction of mosquito larvæ and as a deodorant the use of copper in combination with lime is more effective than when used alone. This mixture destroys mosquito larvæ by rapidly removing from the water in which they were contained the organic matter or nourishment on which they depended for life, and this result is not due to a toxic effect produced by the copper or lime. Therefore, the range of usefulness of these agents, either alone or in combination, in the destruction of mosquito larvæ is limited. As to copper and lime as a deodorant, he believed it to be the most valuable and practical agent we possess for this purpose. Its action as a deodorant is rapid and permanent. It is practically harmless, cheap and easily made, and seems to comply with the requirements of a typical deodorant. Its range of usefulness is extensive, as it can be employed equally well for deodorizing solids or fluids. Little can be said regarding the germicidal value of copper at the present time.

The Disinfection of Schoolbooks.

DR. WALTER D. GREEN, Buffalo, N. Y., stated that an examination of the public school books early in 1902 revealed the fact that they were filthy, especially those used by the lower grades. These books were furnished gratuitously by the city, and consequently there existed a tendency to use them until they were literally in pieces—a period covering several years. It was thought that these filthy books, worn and handled by so many diminutive individuals, might be, and probably were, a source of contagion, and it was decided to disinfect them. The books were placed on their edges, with covers widely separated, on tables and shelves in tightly sealed rooms. Formaldehyd gas was liberated in the room, six ounces of a comparatively fresh commercial formalin being used for every 1,000 cubic feet of air space, the vaporization being induced by the use of wood alcohol being burnt in a receptacle containing the formalin. Bacteriologic examinations were made of the soiled leaves of books both before and after the disinfection, and it was found that about 85 per cent. of all organisms were killed. For the three years immediately preceding this schoolbook disinfection—that is, 1899, 1900 and 1901—the average number of cases of scarlet fever reported yearly to the health department by physicians in Buffalo was 875, while the average yearly deaths for the same time were 36. For the three years following such disinfection the average number of cases reported yearly was 528, and the number of deaths yearly for the same time was 18.

The Sources of Infection.

DR. CHARLES V. CHAPIN, Providence, R. I., after pointing out various sources of infection, directed attention to isolation and disinfection. He said that it was perfectly plain, if we could isolate every case of a given contagious disease until all infection had disappeared, the disease would not merely decrease, but it would be exterminated. If we could only control one-half, one-quarter, or one-tenth of the foci of infection, it was equally clear that the disease would never be exterminated, and it was not even certain that it would diminish. The relation of probable success to the efforts made must decide the extent of those efforts.

Sanitary Conditions of Havana and Further Requirements for Their Improvement.

DR. ERASTUS WILSON, Havana, said that the prevailing annual mortality in the city of Havana previous to American intervention—1898-1902—approximated 40 per 1,000. The general cleaning up of public places and rigid house-to-house inspection and abatement of insanitary domestic conditions, together with filling the puddle holes and irregularities in the macadamized streets, with the prohibition of the ejection of domestic wastes into the by-ways, obtained immediate and notable reduction in the mortality rate in the city. The continuation of these sanitary measures reduced the type of mortality and morbidity to about 50 per cent. of its former rate, besides beautifying the city and making it infinitely more attractive for residents who were interested in health and general culture. The author called attention to a further requirement of sanitary science, which was radical and indispensable, namely, a modern system of sewers of proper section, regularly graduated in size and declivity from their incipience to outfall, impermeable throughout and connected with the closets of every house by lead-jointed, cast-iron pipes, uniting them to the sewer outside the domicile.

The following resolution was adopted:

Resolved, That the association congratulates the civic authorities, the physicians and the people of Havana in general on the gratifying improvement made in its sanitary condition, and especially on their work in freeing their beautiful city from any danger from that once-dreaded scourge, yellow fever, by their persistent and skillful campaign against the yellow fever mosquito. We are especially gratified also that they do not propose to rest contented with what has been done, great as it is, but have already planned other sanitary improvements of great importance, including an efficient system of sewerage, which we wish them godspeed in carrying out at the earliest practicable moment.

Bacillus Tuberculosis in Man and Animals.

The report of this committee was read by DR. V. C. MOORE. He said that since the last meeting several important pieces of work had been reported. These were detailed in the report. The committee carefully compared the disease set up in the bovine animal by material of human origin, and so far it had found the one, both in its broad, general features and in its wider histologic details, to be identical with the other. It had so far failed to discover any character by which it could distinguish one from the other; and its records contained accounts of the postmortem examinations of bovine animals infected with tuberculous material of human origin which might be used as typical descriptions of ordinary bovine tuberculosis. At the laboratory of the State Live Stock Sanitary Board of Pennsylvania, a third instance of infection with the bovine bacillus has been found. The patient was a child not quite 2 years old, that had been nourished the greater part of its life on cow's milk bought from the most convenient store. It developed a large abdominal tumor, which proved on autopsy to be a tuberculous new growth, involving the mesenteric glands and intestine. The lungs were not involved. Cultures were obtained from this tumor, which had the cultural and microscopic characteristics of the bovine bacillus, and proved fatal to a calf weighing 211 pounds in thirty-five days. The committee did not yet feel able to say with what frequency bovine infection of man took place, but it was evidently not a rare occurrence. The committee considered that the evidence going to show that such infection did take place was absolutely conclusive, and that it not only justified, but made imperative, the passage of stringent laws by municipal and state authorities for the suppression of tuberculosis in cattle, and the prohibition of the sale of meat and milk from tuberculous animals.

Report of the Committee on Tuberculosis.

The practical measures recommended years ago were since tested in part, and so far as tested were found of use. These recommendations were:

1. The notification to and registration by health authorities of all cases of tuberculosis which have arrived at the infectious stage.
2. The thorough disinfection of all houses in which tuberculosis has occurred, and the recording of such action in an open record.
3. The establishment of special hospitals for the treatment of tuberculosis.
4. The organization of societies for the prevention of tuberculosis.
5. Government inspection of dairies and slaughter-houses and the extermination of tuberculosis among dairy cattle.
6. Appropriate legislation against spitting into places where the sputum is likely to infect others and against the sale or donation of objects which have been in use by consumptives unless they have been thoroughly disinfected.
7. Compulsory disinfection of hotel rooms, sleeping-car berths and steamer cabins, which have been occupied by consumptives before other persons are allowed to occupy them.

In addition to these specific recommendations, the committee urged on the public the importance of better housing of the poor in their places of abode and in their places of occupation; better control of the food supply at large, and more definite instructions in the schools and on the platform of diet for the working people. The home and workshop were really the centers from which the disease was distributed, and they at the same time were strong predisposing causes of the disease by reason of their unhealthiness. Bad and adulterated food and improper selection of food by the individual were also strong predisposing causes by lowering vitality. The committee suggested that every member act as a committee of one in his own home to help organize a campaign against this disease.

DISCUSSION.

DR. WALTER D. GREEN, Buffalo, N. Y., said that there were two things of special interest in combating the disease, one of which was notification of cases, and the other thorough disinfection of houses in which the disease occurred. In the city of Buffalo every house in which a case of tuberculosis develops is thoroughly disinfected. This has been the practice in that city for the last five years. A card index is of vital importance in keeping track of cases of the disease. The people should be educated in regard to the prevention and control of the disease. Pamphlets giving directions how to keep from getting the disease were printed in Buffalo in German, English, Polish and Italian. Directions were also given as to what to do when people contracted the disease.

DR. FRANK WARNER, Columbus, Ohio, said the reporting of cases of tuberculosis is an important factor in the prevention of the disease, but it is only the first step. Literature should be placed in the hands of families in which the disease developed. Information regarding the disease should also be published and put into the hands of men working in stores and shops. Articles relating to the disease should be published in the daily newspapers for the instruction of the public. The disinfection of houses after deaths had occurred in them is of great importance in order to destroy the germs of the disease. Testing for tuberculosis in cattle by tuberculin has proved a very important thing. At the Ohio State University there is an agricultural and dairy department, so that every cow is constantly tested with tuberculin for tuberculosis, and whenever the disease is found that animal is withdrawn from the herd.

DR. R. H. LEWIS, Raleigh, N. C., endorsed the position taken by the previous speaker. In his state pamphlets concerning the disease and its prevention are placed in the hands of superintendents of public instruction and of school teachers for distribution.

DR. MARCUS HAAS, Memphis, Tenn., referred to the thorough system of dairy and milk inspection in Memphis, from which gratifying results have been obtained.

DR. W. C. CHAPMAN, Toledo, Ohio, said that sanitarians should not demand too much of the physician, for in doing so they undo the benefit which they might otherwise receive. Physicians are reluctant in reporting cases of tuberculosis to city health departments, on account of the protests of families in which the disease occurs.

DR. MANUEL S. IGLESIA, Vera Cruz, Mexico, described the present hygienic conditions of that city, and expressed the hope that at no distant day this port would be one of the healthiest to be found.

DR. ARISTIDES AGRAMONTE, Havana, pointed out the practical utility of a medical board to aid local sanitary authorities in the investigation of infectious disease.

Diphtheria Infection in Minnesota.

DR. F. F. WESBROOK, Minneapolis, stated that in the work of the Minnesota State Board of Health the problems had arranged themselves into three main groups: First, the work of dealing with diphtheria as it occurs in family life, where one or more cases appear in a household; second, where infection was widespread and the day schools had to be closed; third, where infection gained entrance into institutions in which children or other inmates were housed, employed, taught or confined, and where great opportunity for the spread of infection was present. He said it was apparent that:

1. An adequate laboratory staff and equipment are essential, since only by thorough laboratory examination can the presence of possible danger be determined.
2. It has been found convenient to utilize institutional laboratories when available, as the members of the laboratory staff of the State Board of Health can examine cultures on the spot when there is urgent need of haste.
3. The repetition of examination of both nose and throat specimens is advisable in all cases, and especially when suspicious bacilli are found.
4. Every effort should be made to prevent the exchange of nose and throat bacteria between individuals until it is definitely known whether they are infected or not. In infected individuals the bacilli will be eliminated more quickly the greater the approximation to individual isolation.
5. It is unsafe to place hitherto uninfected individuals who develop sore throat with clinical cases of diphtheria.
6. Executive action must be taken on the basis afforded by the laboratory; therefore, it is essential that these two branches be kept in the closest touch, or that in the work of inauguration and supervision of methods a laboratory trained man be placed in charge.
7. That such methods give satisfactory results and are entirely practicable, has been shown in the experience of the Minnesota State Board of Health under conditions which presented the greatest possible variation. Three epidemics had thus been suppressed in a lying-in hospital in Minneapolis where there was no adequate nursing force, where the women before and after confinement were employed in the housework of the institution, where the babies were left in charge of different mothers at different times, and where also the almost daily admission of fresh inmates added to the opportunities for the introduction of infection.
8. The experience of Minnesota would seem to point decidedly to the conclusion that diphtheria infection is transmitted usually by almost direct exchange of flora of the nose and throat.
9. In institutional and school life the more independent the individual and the greater the facilities for individual infection, the greater the freedom from diphtheria infection.

DR. SAMUEL H. DURGIN, Boston, read the report of the committee on the infectious period of communicable diseases.

Social Hygiene.

DR. ADOLPHO OLIVA, Guadalajara, Mexico, pointed out the effects of dress on the system. He also discussed the various forms of dress. He said that variations in temperature of the system, with the climate, seasons, age, constitution, and the conditions of health or of disease fully demonstrated the physiologic necessity of dress.

Yellow Fever in Mexico.

DR. E. LICEAGA, Mexico, described how houses that were infected with the disease are disinfected. As soon as a case of yellow fever is found, the patient is isolated and the mosquitoes and larvæ are destroyed. The Vera Cruz campaign against yellow fever has been very successful, in that there has not been any epidemic of the disease in that city for the last six months. He cited one case to prove, without doubt, that yellow fever is transmitted by mosquitoes alone.

Control of the Milk Supply in Large Cities.

DR. WILLIAM H. PARK, New York City, chairman of a committee, read a report on this subject. The topic was considered under three heads: 1. The proper conditions at the farms. 2. Proper conditions during transportation of the milk, and 3. Proper conditions at the delivery station and in the case of the milk in the homes. Until recently the conditions at the farms have been largely overlooked by the health officers of great cities, on account of the practical difficulties and the expense. The milk commission appointed by the Medical Society of the County of New York has undertaken to assist both the consumer and producer by fixing a standard of cleanliness and quality to which it could certify, and by giving information concerning measures needful for obtaining that degree of purity. The most practical standard for the estimation of cleanliness in the handling and care of milk is its relative freedom from germs or bacteria. Milk must not be sold as certified more than twenty-four hours after its arrival in New York City. The report discussed the duties and requirements of dealers in milk, the barnyard, the stable, the condition of the cows, the milkers, helpers other than milkers, small animals, the milk itself, the utensils for holding milk, as well as the examination of the milk and dairy inspection.

DR. GONZALO AROSTEGUI, Havana, discussed the importance of good quality and careful distribution of the milk supply.

Infantile Feeding by Nurses.

DR. ALFONSO PRUNEDA, Mexico, said it is necessary always to advocate the need of maternal lactation, but in the event of this being found impossible, we should not hesitate to adopt some other methods. Avoid the employment of wet nurses, who, as the writer pointed out, present many objections, but rather make use of sterilized milk, which, when properly and methodically used, would fulfill its purpose, and thus save the lives of many children who would under other conditions perish and increase the infant death rate.

Production of Animal Vaccine.

DR. W. F. ELGIN, Glenolden, Pa., described experiments and detailed his experience in the production of animal vaccine. The author pointed out that: 1. Virus exposed to cold below O. C. might remain active for an indefinite period, certainly for several years. 2. When it is removed from cold storage, it will retain its activity for a considerable period under conditions that usually obtained commercially. 3. When glycerinated lymph is exposed to O. C., or below, the destruction of germ life through the action of the glycerin is practically at a standstill. 4. The rapidity of the elimination of the contained bacteria depends on the temperature above 10 degrees C., in which the virus is stored. He showed that the life of the average commercial vaccine is only three months in winter, and in August and September only about one month. Two lessons might be learned from this: First, one should not vaccinate in the summer season unless compelled to do so by the presence of smallpox. Second, when compelled to vaccinate at this season, one should order the vaccine direct from the laboratory, and use it at once without regard to the dating on the package.

The author stated that dried vaccine in any form was short-lived, and not nearly so reliable as the glycerinated form. The most active virus is to be obtained from the deep curetting.

DISCUSSION.

DR. F. P. BERNALDEZ, Mexico, cited facts and arguments tending to demonstrate the superiority of humanized over animal vaccine for the prevention of smallpox. He claimed that persons who were vaccinated and revaccinated with humanized lymph enjoyed a longer immunity, according to his observations, and in Mexico he had never seen a case so vaccinated attacked by smallpox. His practice has taught him that in such persons revaccination did not take, or at most assumed the appearance of false vaccination, thus proving in his opinion that the individual was not susceptible. He urged that vaccination be practiced by physicians of experience in order to avoid the possibility of transmission of disease.

DR. VINCENTE DE LA GUARDIA, Havana, spoke of the necessity of vaccination and revaccination of individuals who had suffered from smallpox. He said that in most countries there is no vaccination requirement for individuals who had had smallpox. He had had the opportunity of vaccinating and revaccinating 1,599 persons, members of the police department, custom house inspectors, port policemen, persons confined in jails, males and females, etc. Of this number, 328 were branded with the smallpox trademark, and of 47 vaccinated for the first time in their lives, 17 were successful in taking. Two hundred and sixty-three were revaccinated, in 48 of whom it took successfully, giving a total of 65 successful vaccinations. The total result of the 328 who had had smallpox previously corresponded approximately to over 20 per cent. of the total figures. He urged that, as a general rule, all individuals, whether they be ex-victims of smallpox or not, should be vaccinated or revaccinated, as the case might be.

Stegomyia Fasciata.

DR. FERNANDO LOPEZ, Mexico, detailed some experimental studies on the acclimatization of this germ. The experiments seemed to prove that the *Stegomyia fasciata* could live, bite, and breed for at least three generations in Mexico City, notwithstanding the fact that this city has an altitude of more than 7,300 feet above sea level.

(To be continued.)

ILLINOIS STATE ASSOCIATION FOR THE PREVENTION OF TUBERCULOSIS.

Organized Jan. 19, 1905, at Chicago.

This meeting was attended by a large number of physicians, heads of charitable organizations, and professional nurses. The primary objects of the association are to impress the public with the importance of having a state sanatorium where consumptives may be properly treated, and to enact a law to compel cities, towns and villages to keep records of sufferers from the disease and of those who die from it, so that houses may be properly fumigated and disinfected. It is expected that an appropriation of at least $250,000 will be asked from the legislature. Governor Charles S. Deneen was made honorary president, and Dr. Edmund J. James, president of the University of Illinois, acting president, with Dr. Arnold C. Klebs of Chicago as secretary. The association voted in as affiliated branches of the main organization the Visiting Nurses' Association and the United Hebrew Charities of Chicago.

DR. WILLIAM E. QUINE, who called the meeting to order, referred to the lack of general information on the possibility of curbing consumption, to the infection from sputum, and to the lax enforcement of local laws on this and relative subjects. While every case of tuberculosis can not be cured, it is safe to say that 75 per cent. of the cases in the incipient stages, if properly attended to and treated, can be absolutely cured. He referred to the tent colony in Ottawa, and stated that while it does great work, the accommodations are limited.

DR. ARNOLD C. KLEBS said that Illinois is far behind other states in the matter of protecting the public against the ravages of consumption. While the number of consumptives in the state is variously estimated from forty thousand to fifty thousand, there are only 563 beds for such patients in the whole commonwealth. He spoke of what Canada is doing in the way of furnishing hospitals for the victims of the disease, and said that the dominion in some respects is ahead of this country. He advocated the formation of societies in every village, town, and city in Illinois, for the intelligent study of the question and for co-operation with the state body.

DR. WILLIAM A. EVANS said that while Chicago and other cities and towns have ordinances forbidding expectoration, these laws are not enforced, and disease is allowed to be spread broadcast. He pleaded for instruction to the public regarding better living conditions, and concerning more satisfactory conditions in factories and stores.

DR. GEORGE W. WEBSTER said that the Illinois State Board of Health is distributing literature on the prevention of consumption. More than 75,000 pamphlets have been sent out, and there is still a call for them from railroads and other corporations and business firms. Leaders in this movement have become convinced that Illinois should follow the lead of Massachusetts, New York and Rhode Island in the establishment of a state sanitarium. Investigation reveals that there are constantly as many as fifty thousand consumptive patients in Illinois, while Chicago alone averages about twenty thousand. Each year about one-fifth of the victims die, the number in Chicago last year being 3,500, so far as known. It is learned that many cases of consumption are not reported, and that physicians in some cases say the patient died of pneumonia. Taking Chicago's mortality from consumption in 1900 for a basis, figuring the loss of the individual's service per day at the low rate of $1.00, and expenses and maintenance, nursing and treatment at $1.50 additional, it is found that the cost to the city of Chicago caused by the death in one year of 2,682 tuberculous persons amounts to the startling sum of $2,011,500.

The executive committee consists of the president and secretary of the association, ex-officio, Dr. Wm. E. Quine, Dr. J. W. Pettit, Dr. George W. Webster, Ernest P. Bicknell, and Sherman C. Kingsley. The central committee comprises Drs. Wm. E. Quine, Frank Billings, N. S. Davis, Joseph E. Milligan, N. B. Delamater, N. A. Graves, George W. Webster, W. A. Evans, and Robert H. Babcock, and Mr. Ernest P. Bicknell.

CHICAGO SURGICAL SOCIETY.

Regular Meeting, held Dec. 5, 1904.

The President, Dr. L. L. McArthur, in the Chair.

Actinomycosis.

DR. ARTHUR DEAN BEVAN referred, first, to the early history of this disease, saying that von Langenbeck first noticed the sulphur-green bodies of actinomycosis as early as 1845, and that Bollinger recognized the ray fungus in lumpy jaw in cattle. Israel, in 1878, recognized the ray fungus as the cause of the disease in man. Belfield first recognized the ray fungus in lumpy jaw in cattle in this city, and Murphy reported the first case of actinomycosis in man in this country in 1883. Clinically the disease appears in four different forms, with four different groups of infection: 1, The head and neck actinomycosis, with infection from the mouth and pharynx; 2, actinomycosis of the chest through the respiratory tract; 3, abdominal actinomycosis, with infection probably always through the alimentary canal, possibly, however, in rare instances, through the female genital organs; 4, actinomycosis of the skin. The lymphatic glands are seldom involved, but he reported one case in his group of cases in which there was invasion of the lymphatics. Dr. Bevan reported cases illustrating each form of the disease, and showed numerous microscopic slides.

DISCUSSION.

DR. JOHN B. MURPHY said that an important feature brought out by the essayist was the demonstration of lymphatic involvement. In none of the cases that came under his observation was it shown that the lymphatic glands became involved, or that the infection was transmitted through the lymphatic chain and arrested in the lymphatic glands. Another point was the enormous infiltration that occurred around a small focus of suppuration. This is one of the first things that attracted Dr. Murphy's attention in the first case of actinomycosis he saw, in 1883. This was a typical case of actinomycosis of the jaw, in which the infiltration involved the neck to the extent of an inch or more on each side. There was apparently a small fluctuating focus. When the involved area was opened a number of yellow bodies escaped. These appeared molded. They were neither round nor oval. The infiltration described by Dr. Bevan in his case of actinomycosis of the pelvis was one of the classical conditions of the disease in the peritoneum. While the disease affects all the tissues, it elects fatty tissue, involving skin, muscle or bone, lifting its periosteum, attacking the periosteum, or sometimes attacking the fatty tissue close to the periosteum without attacking bone. Dr. Murphy's first, second and third cases recovered, but the fourth, one of peritoneal actinomycosis, terminated fatally. There was no perforation of the stomach wall nor of the large intestine, but there was infiltration of the fatty tissue on both sides, the micro-organisms having passed up into the diaphragm and beneath the surface of the liver. He has also seen two cases of actinomycosis of the appendix. In the first the actinomycotic process was confined practically within the appendix. The appendix was extirpated and the patient recovered. The second case pursued an entirely different course, although death has not yet occurred.

DR. E. WYLLYS ANDREWS said that the large percentage of recoveries referred to is quite contrary to his own experience. Most of the cases he has seen have either died or, if they were living, there is an increasing actinomycotic mass in other parts of the body. He recalled one man who has a mass in his chest, and who, he thinks, is going to die. An analysis of all the cases of actinomycosis of the alimentary canal would scarcely disclose one involving the stomach, and the probabilities are that the acidity of the stomach prevents the active generation of the germs there. A comparatively small number are found in the upper intestine. In nearly one-half of all cases reported the actinomyces are found in the cecum and in the appendix. He has not seen a case of actinomycosis involving the rectal region.

DR. M. L. HARRIS has seen during the past year three cases of actinomycosis, which apparently were hematogenous infections. The first case was in a country boy, who was admitted to the hospital with a slowly-developing swelling in the prevesical space. It had the characteristic hardness. He opened the mass and obtained a small amount of pus. Inoculations from the pus gave a pure culture of *Staphylococcus pyogenes albus*. In the first pus which was evacuated no granules were recognized, but on the dressings, a few days later, the characteristic granules were at once recognized, and when examined microscopically they were demonstrated to be actinomyces. The case progressed, sinuses and fistulæ were formed about the abdominal wall and into the lateral wall of the pelvis. The boy was operated on several times, these tracts thoroughly cleared out, and during the operations the abdominal cavity was opened, because the speaker was suspicious of a primary intestinal origin. The abscess did not originate in the appendix, nor could he find any point of the intestinal tract that was involved. He was unable to explain how the infection reached the prevesical space, except through the blood. The patient was subjected to all the recognized treatments for actinomycosis. Iodid of potash was given internally continually and interruptedly. He was given *x*-ray treatment very thoroughly, but in spite of all treatment he became progressively worse, and after a period of several months died. A peculiarity in this case was the very marked reduction of hemoglobin. The red cells were not reduced in number, but the hemoglobin was reduced to a low point before death. Dr. Harris said that all three cases seemed to be instances of hematogenous infection, the organisms having been carried in through the blood, as there was no local point of infection, so far as he could determine.

DR. A. J. OCHSNER said there are a great many cases of actinomycosis in Chicago and its vicinity, although most of them have not been accurately diagnosed. He is almost never without a case of actinomycosis. He has one under treatment at the present time. He recalled half a dozen cases in which the face and neck were involved; one in which the larynx was affected; in a number the abdomen was involved; in one the eighth rib, and in others the appendix. He has had two or three cases of actinomycosis of the lungs. He believes surgeons should follow the method of veterinary surgeons if they wish to succeed in treating this disease. In late cases of actinomycosis in cattle the veterinary surgeon has the animals killed. He never tries to cure a late case of this disease in cattle. In the early cases, however, an effort is made to remove the entire mass by thorough curettage, followed by the administration of large doses of iodid of potash. Veterinary surgeons give a large quantity of iodid of potash for several days in succession and then they interrupt its use, giving the spores time to develop into ray fungi, after which they repeat the dose for a day or two, then withdraw it for a day or two again, repeat it again, and so on, and in cases where the actinomycotic process is localized the cattle recover. Actinomycosis in the human being should be treated on the same principles. About eight or nine years ago the speaker followed the method of giving iodid of potash in increasingly large doses, but in several cases in succession there was apparently no effect on the disease until he reached the dose of a dram three times a day, and then the progress of the disease became arrested. His first case impressed him with the importance of giving large doses of iodid of potash. It was a case of actinomycosis of the scalp. The disease burrowed and burrowed, and every week or so he found it necessary to scrape the scalp and apply every remedy he could think of, without much improvement. However, when he reached 60 grains of iodid of potash three times a day the disease was arrested. The next case he had acted in a similar manner, and since then he has made it a rule to give 90 grains of iodid of potash in a half pint of hot milk at 2 in the morning, 2 in the afternoon and 10 at night, for as many days as the patient can stand it. After a week it is withdrawn for some days, when it is repeated for three or four days, withdrawn again, and later repeated once a month. The reason why he repeats iodid of potash once a month is that in one of his fatal cases he did this for a time and the patient was apparently well, but two years later the patient

had a recurrence and died of the disease. A circumscribed encysted abscess was found at autopsy in the lower end of the right pleura.

DR. L. L. MCARTHUR reported the case of a young woman, very fond of golf, who frequently was rebuked by her husband for chewing hay while playing golf. She developed actinomycosis of the alveolar process, which required three or four months' treatment by a dentist before it healed. Nine or ten months later she began to have pain in the right iliac region, and this pain being of a rather colicky character, she consulted her family physician, Dr. Carey, who, feeling a mass there, and noticing that she had elevation of temperature, sent her to Dr. McArthur's service at St. Luke's Hospital, believing it to be a probable appendiceal abscess. Dr. McArthur concurred in this diagnosis and advised operation. On opening the abdomen a tumor was found in the ileocecal region, involving the appendix, ileum and cecum, for a distance of four or five inches on the cecum. The tumor in its clinical aspect, although having no miliary bodies on it, seemed to him to be a hypertrophic tuberculosis, and on that basis, with the consent of the family physician, he made a resection of the entire ileocecal region, implanting the resected ileum in the side of the hepatic flexure of the colon. On lifting this mass up from the iliac fossa a few drops of pus were seen on the fascia covering the iliac muscles. This was mopped up, drainage provided for and the wound closed. The wound healed after a few weeks, the patient left the hospital, and for three months was quite well, when she began to have a cough and high temperature, with chills and night sweats. During his absence from the city she was seen by his assistant, Dr. Hollister, who considered the case—although he was unable to demonstrate tubercle bacilli in the sputum—one of acute tubercular trouble, the patient having lived in the house of a patient who had died a few months before of tuberculosis. On Dr. McArthur's return he saw her and found a tender area, with an enlargement in the neighborhood of Spigelius' lobe of the liver, and considered the condition one of hepatic abscess with burrowing through the diaphragm. He urged operative interference. The husband refused to have any operation performed until she had become extremely run down and had a temperature varying from 103 to 106 F. for three or four weeks. The patient was brought to the hospital, an incision was made over this area, and he found an abscess which had perforated the posterior sheath of the rectus muscle, and in which were then to be seen for the first time the typical granules, and the nature of the case became clear. The patient lingered along for about two weeks and finally died. A careful postmortem examination was made by Dr. Hektoen and a very thorough report of the case was made. In the sputum there were found the typical leptothrix-like threads, but never any suspicion was had of granules. In the stomach abscess opened there were typical granules to be found, and from them cultures were made which proved characteristic, so that here was a person in the habit of chewing grain and hay, who had disease of the jaw, who had a hypertrophic actinomycotic infection, which often is indistinguishable from tuberculosis, who recovered from that and later developed hepatic abscesses, with perforation of the diaphragm. Postmortem examination showed multiple stomach abscesses burrowing into the diaphragm and miliary abscesses along the bronchi.

CALIFORNIA ACADEMY OF MEDICINE.

Meeting held Dec. 27, 1904.

Dr. Dudley Tait in the Chair.

Unilateral Pulsus Paradoxus.

DR. A. W. HEWLETT exhibited a patient presenting a one-sided pulsus paradoxus. About eighteen months previously he had suffered from an acute illness, at the close of which the left side of his chest was noticed to be much smaller than the right side. At the present time the air enters only the upper front of the left chest, the remainder of this side being much retracted, flat on percussion and without breath sounds. The left pulse is normal, showing on deep inspiration a slight quickening accompanied by a slight diminution in the size of the individual beats. On deep inspiration the right radial pulse disappears entirely and does not return as long as the position of deep inspiration is maintained. If the right shoulder is passively elevated, however, the pulse does not disappear on deep inspiration. The brachial and axillary pulses disappear with the radial, but the subclavian above the clavicle continues to pulsate under all circumstances. The artery is, therefore, pressed out as it crosses beneath the clavicle, possibly between the clavicle and the first rib or by the fasciæ.

DR. OPHÜLS suggested that the disappearance of the pulse might be caused by an inspiratory dragging on the heart or blood vessels by adhesions and that this might cause a kink in the subclavian artery as it crossed the first rib.

An Epidemic of Diphtheria at Stanford University.

DR. R. L. WILBUR reported his personal experience in the recent epidemic of diphtheria at Stanford University and the neighboring town. The origin of the epidemic could not be definitely traced. Of the 43 cases which came under his observation, in four the infection involved the larynx; in three the mouth; in one the nose, and in one the conjunctiva. No deaths occurred and no intubations were necessary. It was often possible to make an early diagnosis by the use of a throat mirror and probe, thereby discovering small exudates on the tonsils which might otherwise have been overlooked. Cultures were made and in no case was a positive diagnosis made until the cultures were positive. Subnormal temperatures and slow pulse rates were frequent in this series. All patients with but one exception were treated with large doses of antitoxin, 4,000 to 36,000 units being given. The initial dose was 4,000 units, and this amount was repeated within six to eight hours unless marked improvement had followed. The results of the antitoxic treatment were often immediate and most striking, so much so that the correctness of the diagnosis might have been doubted in some cases had no cultures been made. Of 287 persons exposed to the disease and who received prophylactic doses of antitoxin, only one developed diphtheria and he had received only 500 units, whereas 1,000 were usually given.

DISCUSSION.

DR. G. H. EVANS approved of large doses of antitoxin. He said that since the introduction of antitoxin he had noticed many more rashes accompanying diphtheria, and believed that these were due to the use of the new treatment.

DR. WILBUR stated that he believed that the rash frequently resulted from the antiseptics added as preservatives to the serum. He has noticed that the serum put up by certain manufacturers seems more liable to cause rashes than that put up by others.

Abortive Treatment of Gonorrhea.

DR. GEORGE GROSS reported a case of gonorrhea which was aborted by the use of Engelbreth's method. The patient was seen three days after coitus and gonococci were demonstrated in the slight discharge. The anterior urethra was irrigated with 500 c.c. of a .5 per cent solution of silver nitrate under a pressure of 1.25 meters, and the fossa and meatus were swabbed with a 3 per cent. solution of the same salt. Six hours later the irrigation was repeated, using a .2 per cent. solution of silver nitrate. In the pus examined six hours after the first irrigation no gonococci were found and they remained permanently absent. The discharge had ceased entirely by the end of four days. The treatment caused some pain, but less than one would expect.

DISCUSSION.

DR. R. L. WILBUR said that there was danger of doing harm by the use of abortive treatments for gonorrhea.

DR. GROSS replied that these dangers were minimized by the use of large quantities of a relatively dilute solution, administered under a known pressure, thus eliminating the danger of having the irrigating fluid enter the posterior urethra.

Travel Notes.

FOUR THOUSAND MILES THROUGH INDIA BY RAIL IN MIDSUMMER.

NICHOLAS SENN, M.D.
CHICAGO.

(*Continued from page 242.*)

NOTABLE MEDICINAL TREES OF INDIA.

On landing at Tuticurin I came face to face with two trees that I never lost sight of on my long railway journey—the palmyra palm and the nim tree. The palmyra palm (*Borassus flabelliformis*) is a hardy, noble tree, and attains a height of 100 feet. The base of the stem is large and gradually tapers into the stem proper, which has a uniform thickness up to the very crown. The bark is almost black and indented with circular rings. The crown of fronds is small compared with the size of the tree. In southern India the leaves are used for roofing, and nearly all the trees have been pruned down to six or eight fronds. The pulp of the fruit serves as food. Enormous masses of sugar and toddy are produced in India from the sap which flows from incisions of the stalk of the unexpanded flowers. This tree is noted for its longevity, and trees 200 years old are by no means rare. The Mohammedans are supposed to be total abstainers, but not invariably so, as I learned from a little story related to me in India. A man who owned a number of these palm trees, and who had bled them for the purpose of supplying himself with the much cherished toddy, noticed that much of the precious juice disappeared mysteriously during the night. Not suspecting that the pilfering was done by human beings he poured aconite into the cuts into which the sap accumulated. The next morning in going for his toddy he found to his utter astonishment two followers of the prophet dead near the tree and several more very sick in an adjacent thicket. For obvious reasons a judicial investigation was not applied for. The leaves of this palm have been used for centuries as writing paper.

The nim tree (*Melia azadiraehta*) is one of the most beautiful and useful trees of India. It attains a height of 50 feet, has a short, black barked stem, strong, widely spreading branches and a dark, fresh green, rich foliage of long feathery leaves. At Jaipur I saw a boy climb one of these trees, and with pruning scissors sever enough of its leaves to feed a flock of sheep which had gathered around the base of the tree, anxiously awaiting the expected fodder. The leaves have a great reputation as a remedy for dysentery and malaria. Many wonderful stories have I heard concerning the curative powers of a decoction of the leaves of the nim tree. This popular reputation is sustained by the medical profession.

The tamarind (*Tamarindus india*) is a magnificent, large, expansive tree. It is one of the largest trees of southern India. An immense tamarind tree is in the court of the monkey temple at Benares, and it is in this tree that the monkeys take their gymnastic exercises. The monkeys are anxiously awaiting the ripening of its fruit. The acid pulp of the long pods forms the medicinal tamarind, rich in formic and butyric acid, irrespective of its other contents, cold made into a syrup, it can be kept for preparing a palatable acidulous drink.

The bâbul or gum arabic tree (*Acacia arabica*) is a very common tree in India. It is a small tree and is used sometimes for thorny hedges. Occasionally the stem attains a circumference of 10 feet. It furnishes one of the best kinds of gum arabic for medicinal and technical purposes. Cattle are fond of its leaves. The wood is hard and durable, and the pods and bark are used for tanning. One of the most interesting trees in India, although without medical interest, is the banyan tree (*Ficus bengalinsis*). While at Calcutta I made a special pilgrimage to see the famous banyan tree in the Botanical Garden, six miles from the center of the city. A label attached to the stem of the mother tree bears the following legend: "This tree is about 135 years old; the circumference of its trunk, at about 5½ feet from the ground, is 51 feet, and of its crown about 938 feet. It has 464 aerial roots actually rooted in the ground." The sight of this veteran of the Botanical Garden is inspiring. The daughter trees form a circular colonnade and their interweaving branches a roof under which a whole regiment of soldiers would find an ample camping ground. The mother tree shows signs of far advanced senile decay, but her offspring have gained an independent existence and will keep her memory fresh for many generations to come. Since I saw this wonder of the Indian forests I have learned that the banyan tree at Ahemabad is still larger and the largest in the world. Had I known this before I would have intercepted my itinerary at that ancient city.

For technical purposes, the most valuable tree in India is the teak tree (*Tectona grandis*). It is a superb timber tree. It sheds its very large leaves annually. Teakwood is held in the highest esteem by shipbuilders; for the backing of ironclad men-of-war it is preferred to any other wood; also for the panels of coaches and inside finishing of houses, and

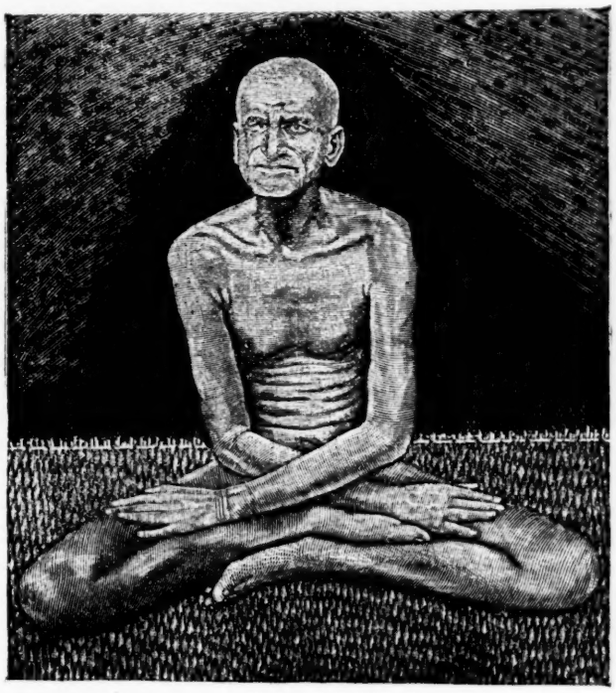

Fig 3.—Swami Bhaskara Nand Saraswati, the famous Ascetic of Benares.

for various other select purposes. The wood is extremely hard and scarcely shrinks. This wood is sold in London at $75 per 50 cubic feet.

The siris-acacia (*Albizzia lebbeck*) is a very common and beautiful shade tree. It produces also a good deal of useful gum. The blossoms are much sought by honey bees, as their pollen is rich in honey-producing material.

BENARES MONKEY TEMPLE.

Among the many things which interest the traveler at Benares is the Monkey Temple. Within the walled enclosure surrounding the temple is an immense tank which collects the rainwater. From the tank a series of wide stone steps lead to the famous temple. On entering the temple, we were met by the chief priest, Sree Swayam Prakashhashanand Maithila Auland Bag, the successor of the Benares saint recently deceased. His dress did not indicate his high Brahmin position. It consisted of a loin cloth and a few yards of yellow calico with which to obscure the left arm and a very limited

part of the chest. His short-cropped, grizzly hair and beard did not add much to his clerical appearance.

The moment we entered half a dozen young priests who surrounded him howled at the top of their voices, how, how, how. I thought I had committed a blunder by entering the sanctuary in my mud-stained shoes. This was not the case. It was a priestly greeting and a call for the monkeys, which came running from all directions, knowing well that the call meant the arrival of a stranger who would be willing to part with a few small silver coins, with some of which the good priests would buy food for them which they expected to eat in the presence of the visitor. They had calculated right; their expectations were realized. These miserable, treacherous, thievish, filthy beasts occupy a high position as objects of worship by the Hindus. To maltreat a monkey constitutes, in their estimation, a greater crime than the killing of a coolie. The monkeys in this temple are the same as the herds of monkeys in and all around Jaipur. They are very large, gray, with a black face and a tail as long and as thick as a broom handle. In a few moments we were surrounded by a large crowd of these pets of the priest, with whom they are very familiar, but they mistrust the white man and remain at a respectable distance from him. They eagerly devoured the proffered food, roasted peas and small crackers. The majestic tamarind tree behind the temple was alive with monkeys of all sizes and ages. Veteran monkeys of doubtful age and baby monkeys on the backs of their mothers, were all equally anxious to be benefited by the liberality of the visitor, as visitors during this season of the year are of rare occurrence. There are more than 300 of these monkey gods in this temple.

A BENARES SAINT.

The priest to whom I have first referred is, as he claims, the legitimate successor to the Benares Saint, Swami Bhaskara Nand Saraswati. (Fig. 3.) He has the advantage over his predecessor in the greater length of his name. The saint, or, as his successor calls him, "Holy Sage," died a few years ago and I visited his plain tomb near the temple. He was for many years a familiar Benares character. His deep learning, plain manner of living and ascetic disposition made him prominent in the priesthood and an object of curiosity to the visitors. He was born in the year 1833. He was invested with the sacred thread when he was 8 years old. He married at the age of 12 but left no issue, although a son had been born to him. Soon after the birth of his child he left his home and wife and devoted himself to the study of Sanscrit, visited shrines and became known to all as a profound Sanscrit scholar, a philosopher and a real Yogi. His successor says of him: "His dignified mien and venerable face silenced the onlookers who had doubted that a man could learn and practice Yoga at such an early age." And again, "His soul penetrated into the very heart of Being, by seeing reality as it is. He was a philosopher to whom God was not merely the creator of this universe, its protector and guide, but the life of his life, the soul of his soul—his very self. Such a sage was the Swami Bhaskara Nand—calm, silent, majestic, immersed in the glory of his own soul." What an enviable record to leave in this world of sin and corruption.

HINDU CREMATION.

Sitting on the deck of a river rowboat and gliding down the sacred Ganges near its border on the side of the ancient city of Benares, we passed the principal temple. I saw a number of burning funeral pyres at the very edge of the turbulent, dirty stream. It was too late to see the whole process of cremation as practiced by the Hindus. It was at Agra that I was given an opportunity to become a witness of this funeral rite. On the way to the Taj Mahal we passed a small procession, following a corpse carried on a litter of dry bamboo sticks on the shoulders of four men. The corpse was covered with a cloth of bright colors, red being the predominating one. The whole procession was made up of men, 24 in number. Women never attend funerals. The procession moved in quick steps and the mourners chanted a monotonous dirge, repeating over and over the same words, which the guide translated into "The name of God is true." Wishing to profit by this opportunity to witness an open-air cremation, I abandoned, for the time being, the visit to Taj Mahal and followed the procession. The procession continued its march until the border of the Jumna River was reached, where the corpse resting on the bamboo litter was deposited on the ground. I learned that the body was the corpse of a married coolie woman, 25 years old. She was sick 15 days with a diffuse swelling of the face (erysipelas?), and had died at 5 o'clock in the morning of the same day. It was now 9 a. m. Her husband was working in a place in the country, 20 miles from the city, and knew nothing of her illness and death. The only relative present was a brother, a lad about 17 years old, who officiated at the ceremony. The people were evidently extremely poor, so economy had to be practiced in cremating the corpse. The men squatted in a group on the banks of the river, smoked and chatted, and nothing but the presence of the corpse and the materials for building a fire reminded us that we were in the presence of death. The young brother was the only one whose face was earnest and expressive of grief, but not a tear was to be seen. Wood is very expensive in India, ¼ pie a pound (1/16 of a cent), hence it was used sparingly in this cremation. About two armsful had been procured. A pile of round dry chips, each about the size of a soup plate, was to be the principal fuel. These chips are made of stable manure mixed with rice straw. In the soft state, they are attached to walls and the outside of houses, where they are dried in the sun, and are used extensively as fuel. They are the prototype of the "buffalo chips" of our western prairies. The ground was first covered with several layers of these chips over an area a little in excess of the width and length of the corpse; pieces of dry wood were then laid across. The body was then prepared by the brother; the highly colored cloth was removed; the face was wrapped in a cloth and was never exposed while the brother washed it with water dipped from the nearby Jumna. Next the glass bracelets were broken with a piece of wood. The body, in a cheap, well-worn calico dress, was placed on the layer of wood and, lastly, chips were piled on all sides and over the corpse. A small bundle of dry brush was then purchased, for four annas, and distributed over the sides and top of the small mountain of chips. A handful of rice straw was then taken from the litter, twisted into a torch, ignited by one of the old men, swung by the brother until it burned in a bright flame, and with this the dry brush was set afire at the head of the corpse. The breeze was in the right direction, and in a few moments the entire pile was ablaze, the chips caught fire and soon the odor of burning flesh escaped with the smoke. It was at this stage of the cremation that I was as anxious to leave as I had been at first to witness it. We left the mourning party jabbering, laughing, smoking and looking lazily and unfeelingly into the smouldering fire maintained by the chips. During our stay, the ashes of the two corpses previously cremated were thrown into the Jumna River. On a knoll overlooking the river a Brahmin priest was perched, awaiting the funeral procession of a corpse attended by mourners who could pay him for his priestly functions. He did nothing for the poor young woman whose corpse was now being devoured by the smouldering fire furnished by the cheapest fuel. He did not have to wait long to assist in the happy incarnation of the soul of one of his faith. In returning to the city we met another funeral procession, chanting the same funeral dirge, but to outward appearances the mourners belonged to a higher cast. They were well dressed and undoubtedly expected to pay the priest liberally for his services.

> "It is a brief period of life that is granted us by Nature, but the memory of a well-spent life never dies."—Cicero.

(To be continued.)

Therapeutics.

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns.]

Treatment of Vaginal Gonorrhea.

The difficulties to be encountered in the treatment of vaginal gonorrhea, according to Dr. Daniel in *Med. Press*, are the peculiar anatomic structures of the female genital organs and the multiplication of microbes in the different segments of the uro-genital apparatus. Its oblique direction downward and forward renders the vagina difficult to disinfect. The treatment should consist of irrigation of the vulva, cervico-uterine, urethral and vaginal tracts. In very acute cases irrigations should be administered, consisting of six quarts of boiled water or a solution of potassium permanganate (1 to 10,000), associated with prolonged baths. After the acute stage has passed the treatment should be as follows:

The whole region inside and out should be washed with soap and warm water by means of a vaginal brush or sterilized wool, followed by rinsing the vagina with simple boiled water, and this followed by an injection of six quarts of warm potassium permanganate solution (1 to 4,000). The vagina should then be plugged with five or six plugs of sterilized gauze impregnated with the same solution. After twenty-four hours the plugs should be withdrawn and the injection repeated as before, followed by fresh plugs. These may then be permanently removed after twenty-four hours. The irrigations should be continued two or three times a day for ten or fifteen days. The os uteri should be painted every two days with a solution of silver nitrate (1 to 100). A pencil of the nitrate should be introduced into the urethra and immediately withdrawn every eighth day, for one month.

Gastric Vertigo.

The treatment of vertigo due to gastric disturbances, according to A. Robin in *Amer. Med.*, consists in directing the patient to take a cup of tea before arising to which has been added 30 grains (2.00) of quassia. The quassia is permitted to macerate in cold tea for two hours before it is drunk. The breakfast should consist of soft-boiled eggs, toasted bread and stewed fruit. No liquid should be given and the only liquid at other meals should be plain water or alkaline waters. No butter, fats, sauces, stews, fat fishes, pork, preserves, pastry, sweets, salads, raw fruits nor acids are permitted. Thin soup, broiled or roasted meat or fowl, vegetables, stale bread, eggs, boiled fish, stewed fruits and rice pudding should constitute the diet.

The tincture of nux vomica is prescribed in five-drop (.30) doses after each meal. And after lunch, dinner and before retiring the following powder is recommended:

℞. Magnesiæ calcinæ.....gr. v |30
Sodii bicarb.....gr. v |30
Cretæ preparatæ.....gr. viiss |50

M. Fiat chart. No. i. Sig.: One such powder after lunch, dinner and before retiring.

The bowels should be regulated by the following pill:

℞. Aloes (cape).....gr. i |06
Cambogiæ.....gr. ss |03
Ext. belladonnæ.....gr. 1/12 |005
Ext. hyoscyami.....gr. 1/12 |005
Ext. glycyrrhizæ.....gr. ss |03

M. Fiat cap. No. i. Sig.: One such pill at bedtime for bowels.

If an attack of vertigo comes on the patient should be given the following combination:

℞. Pulv. serpentariæ.....gr. iiss |15
Pulv. camphoræ.....gr. 1/4 |015
Asafœtidæ.....gr. 1/4 |015
Extracti opii.....gr. 1/40 |0015

M. Fiat cap. No. i. Sig.: From three to six pills, to be taken at intervals during the twenty-four hours.

In cases of extreme nervousness the following is recommended:

℞. Potass. bromidi.....3iss 6|
Aq. laurocerasi.....3iiss 10|
Elix. simplicis q. s. ad.....℥iiss 75|

M. Sig.: One tablespoonful when an attack is threatened.

Hemoptysis.

The treatment of sudden and severe pulmonary hemorrhages, according to E. Hyslop Thomson in *British Medical Journal*, consists in producing conditions which favor the formation of a clot at the seat of hemorrhage by:

1. Diminishing the frequency of heart and lowering arterial tension.
2. By increasing the coagulable power of the blood.
3. By lessening the supply of blood to the diseased area.

To accomplish these conditions he advises that the head and shoulders be elevated and that a hypodermic injection of morphin grain 1/6 to 1/3 (.01 to .02) be given, and that from thirty to forty grains (2.00 to 2.65) of calcium chlorid dissolved in a small amount of water be given as a high injection.

An icebag should be applied to the chest and heat to the lower extremities.

The value of morphin, according to the author, consists in its stimulating the inhibitory center and slowing the heart's action. The calcium chlorid is of great service because, first, the active fibrin ferment is rich in calcium, and wherever coagulability takes place calcium is present; secondly, the conditions which favor coagulability in the lungs are feeble, for blood, after it has circulated several times through the pulmonary vessels without entering the systemic circulation, loses its power of coagulability.

The writer also states that in excessive menstrual flow the injections of ergotin are valuable and that heat should be applied to the lower abdomen. He has not seen such valuable results from the administration of adrenalin in hemorrhages.

Silver Nitrate in Purulent Ophthalmia.

The treatment of purulent ophthalmia, according to Scrini in an abstract in *Amer. Med.*, consists in thoroughly removing the secretions from the lids by means of absorbent cotton and the application of the following lotions:

℞. Potass. permangan.....gr. v |30
Aquæ dest.....Oii 1000|

M. Sig.: To be used as an irrigation to the lids.

Three or four hours later the following should be applied locally:

℞. Argenti nitratis (crys.).....gr. iii |20
Aquæ dest.....3v 20|

M. Sig.: To be applied locally by means of an applicator. This should be neutralized by a solution of sodium chlorid.

If a 1 to 2 per cent. solution of silver nitrate gives no relief in two or three days it should be increased to 4 or 5 per cent. In case of corneal infiltration or ulceration, the silver nitrate should not be allowed to come in contact with the cornea. In such cases the following ointment should be applied:

℞. Iodoformi (dissolved in ether).....gr. iv |25
Vaselini (neutral).....3iiss 10|

M. Sig.: Apply locally.

If perforation seems probable, instill a few drops of a 4 per cent. solution of atropin into the eye.

Leg Ulcers—Varicose and Others.

TREATMENT OF VARICOSE VEINS.

The principles underlying the treatment of varicose veins, according to W. C. Rucker in *N. Y. Med. Jour.*, are:

1. The relief of pressure from within the veins.
2. The upbuilding of the general health.

The first may be accomplished by palliative or radical means, and the second by proper attention to diet, regulation of the bowels, and the administration of iron, arsenic and similar tonics.

The palliative measures consist in elevation of the leg and the fitting of an elastic stocking. This treatment is of benefit in those cases where the patient refuses an operation and in those in which for some reasons an operation can not be performed. However, according to the author, if a case is not

far enough advanced to require an operation, no treatment is necessary, and if an operation is indicated by the conditions present, then other lines of treatment are useless. He, therefore, suggests that the saphenous vein be ligated to remove the weight of blood from the peripheral blood vessels, especially when the deep veins are involved and when the superficial veins alone are involved, multiple incision and ligation should also be done.

VARICOSE ULCERS.

Varicose ulcers are best treated by keeping the ulcer clean and stimulated, and by elevating the limb in addition to the above treatment. In order to render it impossible for the patient to lower the limb he should be put to bed, with the leg bandaged to a long posterior splint, which should be fastened to a box tied in the bed, as elevation must be constant in order to produce the proper results.

In order to cleanse and stimulate the ulcer the patient should be given an anesthetic and the wound thoroughly scrubbed with a brush, using a mixture of calcium chlorid, acetic acid and water, followed by a dressing of oiled silk, sterile gauze and a bandage applied from the toes to the knees. As soon as granulations have been established skin grafting should be performed.

This method, according to the author, is more rapid and certain than the use of various antiseptic powders, ointments, etc., as in wounds of low vitality antiseptics have a tendency to destroy granulations.

CHRONIC LEG ULCERS.

Blankenship, in the *Mobile Med. and Surg. Jour.*, says that in the milder cases of chronic leg ulcers rest, applications of various antiseptic and antiphlogistic remedies, accompanied by constitutional remedies and tonics may be all that is necessary. Strict cleanliness of the parts should always be carried out. Of the milder remedies he believes that one of the best is a weak solution of chloral hydrate (2 to 5 grs. to the ounce of water) applied on lint, with which he has had very good results in some cases. The more severe cases require more heroic treatment.

If inflammation is present, it should first be reduced by rest and appropriate means. Ichthyol applications are good for this purpose. One of the most common and perhaps one of the best methods is the adhesive plaster strappings of Baynton. This acts by affording support and compression, two of the cardinal principles in treatment of these cases, but if there is much discharge the strips would have to be removed so often that it would not answer very well. The best and most heroic plan, though it may confine the patient to his bed or to the house for five or six weeks, Blankenship believes, is in the long run the shortest course.

The method pursued is this: After a short preliminary treatment designed to disinfect the ulcer as much as possible and to reduce inflammation, the patient is given a general anesthetic, the ulcer and surrounding parts are scrubbed with a stiff nail brush and soft soap, then thoroughly curetted with a sharp curette, removing all the soft diseased tissue down to the hard, dense cicatricial base, exploring any pockets and scraping them. Then, with a scalpel, he makes incisions through the base and edges of the hardened fibrous tissue, cutting nearly or quite through the same. He crosses the incisions. If there is hemorrhage, it is stopped by hot water and pressure. With a mop of absorbent cotton he lightly and quickly touches the entire surface with pure carbolic acid, following it immediately by alcohol to limit the caustic action. He uses this not merely for its antiseptic action, but because it deadens pain. The patient does not suffer from pain after the operation. He fills the wound with boric acid in powder or scales, and applies a sterile gauze and cotton dressing, held firmly in place with a gauze bandage. If there is not much oozing this is allowed to remain on for two days. The subsequent dressing consists of cleansing with hydrogen peroxid in 50 per cent. solution and a dry dressing of an antiseptic powder combined with ichthyol, sterile gauze and cotton with bandage. If the granulations become too exuberant Blankenship uses nitrate of silver. Under this treatment there is usually a complete cure in from four to six weeks. The patients can be allowed to walk around the house a little after three or four weeks.

Eczema in Infants.

Zinc oxid is, as a rule, the best application in the treatment of moist eczema especially. It may be applied in the dry powder form or combined as follows, after thoroughly cleansing the parts involved:

℞.	Acidi salicylici	gr. ii	02
	Pulv. amyli	ʒii	8
	Zinci oxidi.....	ʒiv	15
	Adipis lanæ hydros. q. s. ad.....	ʒi	30

M. Fiat unguentum. Sig.: To be applied locally night and morning.

Efforts should be made, in case of infants, to prevent scratching by tying the hands.

Chronic Prostatitis.

The treatment of chronic prostatitis outlined in THE JOURNAL, Dec. 31, 1904, will more exactly correspond with that of Dr. E. G. Ballenger, if carried out with the following details: The sounds should be placed in ice water before being placed in the urethra, for the purpose of solidifying the ointments made with oleum theobromate. Instead of the knee-chest position on the table, Dr. Ballenger recommends a semi-stooping position in which the patient rests his arms on the chair. The prescription preferred is as follows:

℞.	Argenti nitratis.....	gr. v-x	30-.65
	Olei olivæ.....	m. xv	1
	Lanolini	ʒi	30

This should be introduced with an ointment carrier.

Medicolegal.

When Certificate of Death Is Competent Evidence.—The appellate term of the Supreme Court of New York says, in the case of Carmichael vs. John Hancock Mutual Life Insurance Co., that the certificate of the attending physician, when made a part of the proofs of death, is competent evidence on the trial as an admission against interest (Donnelly vs. Ins. Co., 43 Misc. Rep. 87; Hanna vs. Ins. Co., 150 N. Y. 526); and the cases which hold that such a certificate, when offered as such, without the characteristics of an admission by the plaintiff, may be excluded as privileged (Robinson vs. Supreme Commandery, 77 App. Div. 219; Davis vs. Supreme Lodge, 165 N. Y. 159), do not apply. Where the certificate has been delivered among the proofs of death, its character as proof is derived not from what the physician declared, but from what the plaintiff has admitted to be the fact, i. e., the cause of death, and the privilege which she might assert to exclude the evidence of the physician does not extend to evidence of what she has herself admitted.

Things to Which a Physician May Testify.—The Third Appellate Division of the Supreme Court of New York says, in the case of Becker vs. Metropolitan Life Insurance Co., where a policy was issued April 20, 1900, that the insurance company sought to show by a physician that on Oct. 30, 1899, he was called to attend the insured in his professional capacity; also whether he at that time did so attend him; also whether he had any record of the dates when he attended the insured in Norwich or elsewhere; also if he remembered how long the insured was confined to his house in October, 1899; also to give the dates between Oct. 30, 1899, and April 1, 1900, when he was called in to attend the insured, or when the insured called at his (the physician's) office to receive medical attendance from him. His answers to these inquiries were excluded, on the ground that they were prohibited by section 834 of the Code of Civil Procedure. This, the court holds, was error. It says that neither of the questions called for information that was in violation of such section, while such information was manifestly pertinent to the issue being tried, and would doubtless have much weight in controlling the jury's verdict.

Promise for Town to Pay for Past Services.—The Supreme Court of Vermont says that in the case of Farmer vs. Town

of Salisbury, brought by a physician, it appeared that, February 3, he was requested to visit a poor woman by a neighbor who promised to pay for that visit. The physician made the visit and informed the neighbor that the woman would require attendance for a long time. The neighbor declined to be further responsible, and by his advice the physician saw another neighbor, who tried to communicate by telephone with the overseer of the poor of the town, but, failing to do so, advised the physician to continue his visits, saying that he would see the overseer about the matter; but he did not see him until February 15, when he had an interview with him in the physician's behalf. The overseer then used language from which it was found that this neighbor understood, and had the right to understand, that the town would assume payment of the physician's charges, and that he so informed the physician. The trial court found that after the first visit the physician rendered his services in the expectation that the town would pay him, and, after this second neighbor's report to him, in reliance on such payment. The Supreme Court says that it was apparent that the overseer undertook to assume payment of the physician's entire bill, but there was no consideration for the promise to pay for the services rendered prior to February 15. They were not rendered on the overseer's promise to pay, and did not inure to the town's benefit. Therefore, the town was not liable for them, but was liable for the charges made after that date.

Communications to Physicians Not Privileged.—The Supreme Court of Rhode Island says that in the divorce case of Banigan vs. Banigan while a master in chancery was taking the deposition of a physician who had treated the defendant professionally, the witness objected to stating the disease for which he had treated the defendant. The master decided that the witness should testify. Thereon, the witness suggesting that the question as to whether he should be compelled to testify was one of much importance and that it should be decided by the court, the master suspended the proceeding, and filed a petition before Mr. Justice Dubois asking advice as to whether the witness was privileged to refuse to testify. The justice formally advised the master that the witness was not privileged to refuse to testify as requested by counsel for the petitioner, communications to physicians not being privileged in Rhode Island, and hence that the witness should be required to answer the question. The Supreme Court says that the petition by the master for instruction and advice above referred to was clearly within the jurisdiction of Mr. Justice Dubois, and, he having passed thereon, there was no authority in the Supreme Court either to reverse or to review his finding. It further says that there was obviously no reason for the justice who heard the matter in question to refer it to the larger quorum, since the uniform practice of this court from the earliest times has followed the rule of the common law in refusing to recognize a confidential communication to a physician as privileged, so as to protect the physician from divulging it when called on to do so as a witness in court.

Damages for Mental Anguish Without Physical Suffering.—The Supreme Court of North Carolina, in the case of Green vs. Western Union Telegraph Co., says that a significant fact is the growing tendency of judicial opinion to allow compensatory damages for mental suffering even when disconnected with any physical suffering. Of course, in cases merely of slander or libel, the court says, there could be no physical pain except as the reaction of mental suffering. The mere fact that a shock to the feelings which goes directly to the mind, without ever touching the body, may produce such reaction on the physical system as even to endanger life itself, is *per se* (by itself) the surest proof of the existence of actual suffering, and the strongest argument for the allowance of compensatory damages. If such suffering actually results directly from the wrongful act of the defendant, it would seem to make but little difference what were the collateral circumstances. Again, the court says that when we remember that this doctrine of mental anguish in telegraph cases is of recent origin, having theretofore been deemed contrary to the principles of the common law, and has made constant progress in opposition to the preconceived ideas of courts and jurists, it seems that it must possess much inherent strength and merit. This is especially evident from the action of certain courts, some of them of the highest reputation, which, while denying the doctrine in telegraph cases that damages for mental suffering may be recovered in the absence of physical pain or injury, allow it in cases of a kindred nature, such, for instance, as insulting or humiliating a passenger. An examination as to the present status of the doctrine in the different states, so far as ascertainable, shows it adopted in telegraph cases in Texas, Tennessee, Alabama, Kentucky, Iowa, Louisiana, South Carolina, Nevada, Washington (indirectly). The doctrine is denied, as shown by the most recent cases in Florida, Georgia, Illinois, Indiana, Kansas, Minnesota, Mississippi, Ohio, West Virginia, Wisconsin, Virginia. In this case a statute was passed on the subject, which apparently failed of its purpose. In the following states there have apparently been no decisions in telegraph cases on the subject: Arizona, California, Colorado, Connecticut, Delaware, Idaho, Maine, Maryland, Massachusetts, Michigan, Montana, Nebraska, New Hampshire, New Jersey, New York, North Dakota, Oregon, Pennsylvania, Rhode Island, South Dakota, Utah, Vermont, and Wyoming.

Current Medical Literature.

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

American Medicine, Philadelphia.

January 14.

1 *The Foundations and Aims of Modern Pediatrics. Theodore von Escherich, Vienna, Austria.
2 Comparison of Roentgen Ray and Surgical Treatment of Tuberculosis. James R. Bullitt, Louisville, Ky.
3 The Early Recognition of Hypertension. Henry Wireman Cook, Richmond, Va.
4 *Intussusception of the Appendix Vermiformis. George Emerson Brewer, New York.
5 *Lithemia: Its Diagnosis and Local Treatment. F. M. Johnson, Boston.
6 Three Interesting Cases: Gastroptosis and Dilation; Chronic Tenosynovitis; Thoracic Abdominal Aneurism. G. Childs MacDonald, San Francisco.

1. **Modern Pediatrics.**—Escherich reviews the various steps taken by pediatrics in its development into a science and which have considerably extended and clarified the study of pediatrics. Modern pediatrics exhibits a scientific structure including all disturbances of the life processes, arranged according to scientific principles, and in its completeness not reached by any other specialty in medicine. Only a small number of diseases can be considered peculiar to childhood, because they are caused by events which can not occur in the life of adults, such as the change from intrauterine to extrauterine life, and growth and development. The key to the understanding of the special pathology of the infantile organism is to be found in the study of developmental processes. Between the growing organism of the child and that of the completely developed adult great differences exist in the reaction called forth by the diseased process, the variations, which change constantly in the course of childhood. The author also considers the threefold division of childhood accepted by Vierordt, which he accepts as the most scientific as well as practical.

4. **Intussusception of the Appendix.**—Brewer cites the case of a woman, aged 22, suffering from symptoms of acute appendicitis. The abdomen was opened, and a prolonged search made for the appendix, which proved futile. Five months later the patient again presented herself, complaining of constant pain and tenderness in the right iliac fossa. The abdomen was again opened, the ileo-cecal region was dissected free from a mass of adhesions and thoroughly inspected. No trace of the appendix was found, but on palpating the cecum an elongated oval body was felt within its lumen. The intestine was opened by a longitudinal incision, and the inverted appendix was found projecting into the cecum. The patient

made a satisfactory convalescence and is entirely relieved of all symptoms. Brewer suggests that the condition was a congenital one and that the acute attack was due primarily to the inflammation of the cecum which resulted in a stricture with secondary involvement of the appendix. Or, that as a result of a catarrhal appendicitis, with or without the presence of a foreign body, the muscular efforts of the appendix to rid itself of its contents became so violent as to produce an intussusception in the same manner as the lesion is produced in other portions of the intestine.

5. **Lithemia.**—Johnson emphasizes the great value in lithemia of the microscopic findings in the urinary sediment, not only because of their diagnostic importance, but also because they serve accurately to indicate certain essential lines of treatment. He says that if catarrhal inflammation of the kidney is present and the bladder is likewise involved, thorough washing out of the bladder and lavage of the kidneys are of great value. When carefully done the procedure is harmless. The invasion of an ascending inflammatory process is completely stopped and accumulating concretions are washed away. The treatment is discussed in full.

Medical Record, New York.

January 14.

7 *Diseases of the Isthmian Canal Zone. Richard L. Sutton, U. S. A.
8 Value of Publicity Regarding Tuberculosis. Denslow Lewis, Chicago.
9 Sudden Death, Especially from Embolism Following Surgical Intervention. Byron Robinson, Chicago.
10 Treatment of Digestive Disorders. James W. Hunter, Norfolk, Va.
11 Infections of the Gall Bladder. Thomas W. Harvey, Orange, N. J.
12 *Pneumonia in High Altitudes. Summary of 101 Cases of Lobar Pneumonia Treated at the American Hospital, Mexico City, from 1890 to 1904. Albert R. Goodman, Mexico City.

7. **Diseases of Isthmian Canal Zone.**—Sutton reviews the diseases to be encountered in this particular territory, and the conditions which must be met by medical men. He says that the practitioner who expects to find a case of "yellow jack" or black water fever in every native clinic he conducts, will be greatly disappointed. These diseases are present at times, but are encountered much more seldom than the average reader would be led to imagine. Malaria is probably more frequently seen than any other affection among the natives. Long-continued residence and many attacks of malaria have combined to render the older inhabitants partly or wholly immune to the infection. The disease is encountered very frequently, however, among children, from earliest infancy to adolescence. The estivo-autumnal type is the most common. Often the symptoms seen are not directly indicative of malaria at all. The onset may be very atypical. Mixed tertian and estivo-autumnal fever is seen rarely, and no case of quartan infection has been discovered. Patients suffering from advanced degrees of malarial cachexia are often met with. Dengue is the disease which most frequently attacks the new arrival in the Isthmus, and even the more acclimated natives do not wholly escape it. The disease is extremely contagious, and many persons in the same place are usually attacked at the same time. Beri-beri, seen most frequently in the wet lowlands and marshy districts, thrives in the Isthmus, especially affecting the Chinese contingent. Both the dropsical and paraplegic forms are seen, often the two are associated. Infection with intestinal parasites is the rule. The eggs of half a dozen different species can be found in nearly every specimen examined. The parasites found are the *oxyuris vermicularis*, *tricocephalus trichiuris*, *ascaris canis* and *ascaris lumbricoides*, *strongyloides intestinalis*, and *uncinaria duodenalis*. One of the most troublesome insects on the Isthmus is the "jigger," the *culex penetrans*. Snakes, centipedes and spiders are numerous, but the danger from them is not great. Heat exhaustion and sunstroke occur more often among the Americans than any other class. Dysentery is still much in evidence, especialy among the natives. The disease is of both types, the acute specific, due to Shiga's bacillus, and the amebic, with the former predominating. Acute and chronic articular rheumatism also occur, and myalgia, especially of the lumbar muscles, is frequently encountered, malarial infection probably being the causative agent in many cases and dengue in others. Smallpox makes occasional inroads. Yellow fever is not at present epidemic and sporadic cases are seldom seen. Sutton says that the Isthmus is now in better condition, from a hygienic standpoint, than it has ever been, and, taking even the peculiar character of the climate into consideration, the health of the inhabitants will soon compare favorably with that of the residents in any extreme southern country.

12. **Pneumonia in High Altitudes.**—Goodman gives a summary of 101 cases of lobar pneumonia treated at the American Hospital in Mexico City during the past fifteen years. Of this number, 91 were males and 10 were females. The greatest number of cases, 79, occurred during the first six months, only 22 cases occurring in the second half of the year. Pneumonia is frequent before the rainy season and decreases during the rains and directly afterward. The average mortality for all cases during this time was 39.8 per cent. Deducting 4 cases in which death occurred within twenty-four hours after entering the hospital, the mortality is 37.1 per cent. Of cases treated since 1898 (since when more accurate records have been kept)—68 in all—the mortality was 50.1 per cent.; of these 4 died within 24 hours after admission, leaving the mortality of the remaining 57 cases, 47.4. The average of these 4 mortality percentages is 43.5, which in Goodman's opinion represents fairly accurately the actual mortality of pneumonia as existing in the hospital.

Medical News, New York.

January 14.

13 *Care of Puerperæ. James D. Voorhees, New York.
14 *Trauma and Chronic Compression of the Epigastrium as Etiologic Factors of Gastric Ulcers. William Ackermann, Milwaukee.
15 Nervous Symptoms Accompanying Pernicious Anemia. Roy M. Van Wart, New Orleans.
16 *Prostatectomy in Emergency Cases. John F. Erdmann, New York.
17 Observations on the Blood Pressure in Disease. Roger S. Morris and Charles W. Edmunds, Ann Arbor, Mich.

13. **Care of Puerperae.**—Voorhees advises continued asepsis after delivery. For the first two or three days he places a piece of gauze wet with a 1 to 10,000 bichlorid solution over the vulva beneath the sterile vulva pad. Early vaginal examination and douching he condemns. After from ten to twelve days hot douches undoubtedly help the involution of the uterus. In some cases where the uterus continues to relax immediately after delivery, he often gives an intrauterine douche of acetic acid with good result. Voorhees says he often doubts the efficacy of the abdominal binder, although for the first two or three days it does keep down the gas and supports the abdominal walls. And in short-waisted women who have carried the child high and well out in front, it prevents an anterior relaxation of the abdominal walls. But for women who carry the child low and well backward, they are more or less unnecessary. Consequently, if such cases are bothered by the binder after the third to fifth day, he allows it to be discarded. To insure as complete involution as possible, Voorhees advises that on the second day the patient should be turned first on one side and then on the other; on the fifth day she should commence to lie on her abdomen for shorter or longer periods and be encouraged to sleep in this position, if possible. This change in posture favors the escape of the lochia and allows the uterine ligaments to contract, so favoring normal anteflexion. He advises keeping the patient in bed at least two weeks and longer if any signs of subinvolution persist. If involution is delayed, hot vaginal douches, boroglycerid tampons, ergot, quinin and strychnin are of service. The routine vaginal examination should be made before any case is discharged to determine the possible existence of erosions, inflammations, displacements, etc.

14. **Etiologic Factors of Gastric Ulcer.**—Ackermann discusses the influence of traumatism and epigastric compression, particularly long continued, in the causation of gastric ulcer. He says that, taking into consideration the fact that men, owing to their occupation, are more liable to epigastric compression than women, it is plain why ulcers occur more frequently in

men than in women during the latter years of life. And that in all probability many cases of gastric dilation thought to be due to perigastritis really owe their existence to cicatrices following traumatic ulcers. Sixteen cases are cited in which constant pressure on the epigastrium was followed by gastric ulcer. Both the occupation of the patient and the situation of the ulcers seemed to substantiate the author's view of the importance of compression, the ulcers usually being found near the pylorus, this part of the stomach being more exposed to pressure.

16. **Prostatectomy in Emergency Cases.**—Erdmann calls attention to the advantages of doing a prostatectomy in every instance possible, when the prostate is in part the cause of obstruction, in cases coming under the head of emergency drainage of the bladder. He cites records of eight cases that belong distinctly to this class in which relatively six different emergency indications are dealt with. The cases were as follows: 1. Impassable urethra due to stricture with rupture and gangrene of the entire scrotum and perineum. 2. Retrograde hemorrhage, bladder being full of clots and bloody urine, with malignancy of prostate. 3. False passage; retrograde hemorrhage; suprapubic aspiration, with infiltration of abdominal wall extending to the thorax and to the gluteal regions. 4. Acute obstruction due to eposure to cold and wet, inability to catheterize; trauma of the urethra. 5. Trauma of the urethra; catheterization for several days, retrograde hemorrhage, etc. 6. Deep stricture of the urethra; obstruction; catheterization cystitis with absorption. Erdmann is of the opinion that drainage by prostatectomy in these cases is the only method of procedure and that the perineal route is the one to be selected in practically every instance. Cases 1 and 3 died, but not because of anything in connection with the operation. Erdmann recommends emergency operative procedure because (a) only a few minutes more are required to remove the gland, the hemorrhage as a rule is not excessive, and the operative procedure itself does not increase the shock to any degree. (b) The removal of the prostate gives proper exit to the urinary outflow and admits of easy drainage. (c) Washing the bladder is much facilitated. The perineal route is recommended because (a) the opening is practically at the lowest point of the bladder and complicated devices for drainage, such as are necessary in suprapubic sections, are not required. (b) The old, being irritable and feeble and requiring to be moved frequently, the drainage in the suprapubic method is constantly interfered with, while in the perineal method it is controlled. (c) The after-soiling, when the tube is removed, is slight, and easily controlled in the perineal method as compared with the suprapubic. (d) Bladder irrigations are more readily done with less soiling of the bed, etc.

New York Medical Journal.

January 14.

18 The Present Status of Railway Emergency Work. U. F. Martin, New York.
19 *A Clinical Study of Myoidema with Especial Reference to Its Occurrence in Pulmonary Tuberculosis. Henry L. Shively, New York.
20. Radium; a Review of the Literature. Fred G. Hodson, Atlanta, Ga.
21 Differentiation in the Diagnosis of Non-deforming Club-foot. John Joseph Nutt, New York.
22 *Tic Douloureux and Other Neuralgias from Intranasal and Accessory Sinus Pressures. Sargent F. Snow, Syracuse, N. Y.
23 Biliary Colic Without Gallstones. John G. Sheldon, Telluride, Colo.
24 The Proper Scope of Scientific (So-called Expert Testimony in Trials Involving Pharmacologic Questions (concluded). Solomon Solis-Cohen, Philadelphia.

19. **Myoidema in Tuberculosis.**—Shively has found this symptom present not only in tuberculosis pulmonalis, but also in typhoid, lobar pneumonia, acute and chronic bronchitis, carcinoma of the breast, aneurism of the arch of the aorta, and in secondary syphilis, and he has also observed it in perfectly normal individuals. In a series of 750 consecutive cases of tuberculosis of the lungs, myoidema was present in 703. Of this number, 196 were incipient, 475 moderately advanced and 79 advanced cases. In the incipient cases the fibrillary and nodular variety of myoidema could be obtained in 135; the nodular alone, in 19; the fibrillary alone, in 24, and neither form in 18. In the moderately advanced cases both kinds were present in 379; the nodular alone, in 30; the fibrillary alone, in 37, and neither form, in 29 cases. In the advanced cases both varieties were obtained in 74; the nodular in 4 cases, and the fibrillary in 1 case. It would seem that a phenomenon found in such widely different conditions could have but little diagnostic significance in any one of them. Yet, it is apparent that it is present in the great majority of all cases of tuberculosis of the lungs, and that it is usually obtained even in the incipient stages of the disease. Therefore, it is not without some importance as an addition to the syndrome of signs and symptoms which makes the early diagnosis less difficult. Myoidema, says Shively, is one of the indications of departure from health which should receive some consideration.

22. **Pressure Neuralgias.**—Snow believes that many cases of tic douloureux arise from intranasal and sinus pressure, and that 80 per cent. would be a modest estimate. The intense aggravated forms of headaches characterized by convulsions, rigidity of muscles, etc., that he has observed have been in females where a combination of both marked nasal and uterine factors existed. He advises careful and thorough inspection of the intranasal and accessory sinuses in such cases.

Boston Medical and Surgical Journal.

January 12.

25 *Systemic Use of Work as a Remedy in Neurasthenia and Allied Conditions. Herbert J. Hall, Marblehead, Mass.
26 *Improved Technic for End-to-end Intestinal Anastomosis. Alfred H. Gould, Boston.
27 Observations on Experimental Drainage of the Peritoneal Cavity of Cats. Fred T. Murphy, Boston.
28 Consideration of Autointoxication and Autoinfection as a Cause of Various Mental Disorders (concluded). L. Vernon Briggs, Boston.

25. **Work as a Remedy in Neurasthenia.**—Hall protests against the almost universal application of rest in the treatment of neurasthenia and allied conditions. A study of the etiology of this rather indefinite disease has led him to some conclusions as to treatment that are a little at variance with the usually accepted ideas. Hall believes that some means must be devised whereby the neurasthenic or anyone who, for reasons of mental and nervous hygiene, might need to change his occupation and habits of life, could do so without the shock or failure which the usual desultory and spasmodic attempts at such an action imply. The great need seems to be to lift the neurasthenic out of his tangle of nervous symptoms, not by substituting another abnormality in the shape of unduly prolonged rest, but by bringing about, by a gradual process, the conditions of the normal life, a life of pleasant and progressive occupation, as different as possible from the previous life and resulting in self-forgetfulness. Manual work is best, for it is objective and wholesome, and trains to accuracy and precision of movement. In order to test the soundness of these preconceptions, Hall established a practical shop for the manufacture of pottery and for the production of a variety of fabrics by means of hand weaving. A competent teacher was secured, and she, with a few assistants, proceeded to make the shop practical and effective from a mechanical and artistic point of view. The shop was popular at once and had a very encouraging effect on the early patients. Basket-making has recently been introduced and is proving very useful. The work of the patients has been surprisingly good when judged by exacting standards. Having established this shop and made it practicable for those mildly affected, the next step was to attract and hold a confirmed neurasthenic and to enable them to escape the usual consequences of exertion. In the lighter cases there was no difficulty. The surroundings were so novel and the work so attractive that before they realized it themselves, these patients were hard at work. After eliminating as far as possible such evident sources of irritation as eyestrain, the problem seemed that of diminishing the prohibitive or anticipatory fatigue symptom. To do this Hall begins a treatment by a short period of rest in bed, perhaps a few days, perhaps a week, under the usual rest-cure conditions. Then, without any warning whatever, the patient

is required to do something. A very gradually progressive program is written out each day and intrusted to the nurse, the patient having no knowledge of what is expected of him. This device has proved exceedingly satisfactory. The progression leads to the shop and it depends on the work there, the actual living of a rational life, to fix and render permanent the improvement. The hours of rest are gradually made shorter and the hours of work longer until the day is full of interest and self-forgetfulness and the need of prolonged rest is lost. After a few weeks of work, when the inertia of months or years has been cast aside, it is remarkable to observe the change in facial expression, in precision and skill of movement, and in the whole morale of the patient. To encourage a feeling of independence, it has been decided that when a patient can turn out work of value the product may be sold through the agency of the shop and the proceeds credited to the maker. In order to test more thoroughly the efficiency of treatment by work, little or no use has been made of special baths, massage and electricity. The one great end to be obtained is self-forgetfulness and a pride and satisfaction in work and in life. While the agents mentioned are of value and are sometimes necessary, yet they constantly call the patient's attention to himself and to his symptoms. Hall hopes that the treatment by work will not only sidetrack the neurasthenic state, but will substitute a simple, but positive efficiency which will reorganize the life of the individual on better lines and which will do it substantially and speedily without undue mental strain on the part of the physician, nurse or patient.

26. **Improved End-to-End Intestinal Anastomosis.**—According to Gould, the only original feature of his technic is the method of beginning the first layer of continuous sutures. It is customary to start at the free edge of the bowel and sew toward the mesentery. This makes it necessary to work in a pocket while crossing the mesenteric border. For this reason it is preferable to place the first guides in such a manner that the mesenteric border will be first developed, and, when this has been sewed across, the rest is plain sailing. The size of the catgut is important. No. 0 chromic gut is amply strong and threads easily in a No. C milliner's needle, which is twice or three times the size of the usual needle employed. No. I Pagenstecher's celloidin thread and No. 0 chromic gut thread so easily that it can be done without any delay during the operation. The anastomosis is made with three separate stitches: 1. The mattress mesenteric stitch (Maunsell, Connell). 2. Continuous suture of all coats. 3. Interrupted or continuous seromuscular stitch (Cushing or Lembert). After the usual clearing of the lumen of the gut, short-jawed clamps are applied, leaving a margin of about three inches on either side of the area to be cut out. Handkerchief gauze is wrapped around the intestines beneath the clamps to isolate the field of operation. The resection is done by means of scalpel and scissors. Hemorrhage from the mesenteric vessels is checked at once. The placing of the Maunsell mesenteric mattress stitch forms the starting point of the anastomosis. This should enter and leave the bowel at least an eighth of an inch from the cut edge, but should penetrate the mesenteric space and peritoneum farther forward. The mesenteric third of the bowel circumference is rather inaccessible, and, to bring this portion forward, guide stitches are introduced with the ends left inside. On tightening the guides, the remaining circumference of the bowels falls away and the inverted edges are freely exposed at their mesenteric attachments. To control hemorrhage and to bring the cut edges together, a continuous chromic catgut stitch is used, size preferably No. 0. This stitch starts near one of the guides and is knotted on the outside where a long end is left to tie to the last stitch after it has completely approximated the circumference of the cut edges. The continuous through-and-through stitch passes across from one guide to the other. When the second guide has been reached, a third guide is introduced half way between the first two, on the free edge of the bowel opposite the mesenteric attachment. The ends of this guide are left outside. Traction on this and on the lower guides will make easy the completion of the continuous suture. The last stitch is knotted to the long end left on the first knot and the guide is removed. The continuity of the chromic stitch must be broken at points an inch or so apart. This makes it difficult to narrow the lumen by drawing the catgut into a purse-string and also gives greater security to the joint. The most important step is the seromuscular stitch. Both continuous and interrupted sutures are employed for this purpose, but the Lembert interrupted is the more reliable, on the whole. The first interrupted seromuscular stitch is placed opposite the mesenteric border, and this is followed by a stitch at the mesenteric edge on either side. The ends of these three stitches are left long, as they make excellent guides for the remaining stitches, which are introduced in the usual way. The mesentery is finally brought together by a few interrupted catgut stitches.

Lancet-Clinic, Cincinnati.

January 7.

29 A Study of the Mental Disorders of Adolescence. Frank Parsons Norbury, Jacksonville, Ill.
30 Indifference to Diagnosis One of the Dangers of Modern Surgery. Jacob Block, Kansas City, Mo.
31 The Tear-passages and Their Diseases. Mark D. Stevenson, Akron, Ohio.
32 Case of Tuberculosis with Some Unusual Points of Interest. Samuel E. Earp, Indianapolis, Ind.
33 The Ocular Manifestations of Cerebral Syphilis. Louis Stricker, Cincinnati.
34 Is the Practice of Producing Abortion Common Among Medical Men? T. B. Greenley, Meadow Lawn, Ky.

St. Louis Medical Review.

January 7

35 A Device for Making Forward Pressure on the Body of the Uterus. Frank P. Foster, New York.
36 Arizona Ticks. W. C. Barnard, Seneca, Mo.

Bulletin of the Johns Hopkins Hospital, Baltimore.

January.

37 *Some Newer Aspects of the Pathology of Fat and Fatty Degeneration. Henry [illegible], Boston.
38 Fabricius Guilhelmus Hildanus: the Father of German Surgery. Walter B. Platt.
39 Importance of Testing the Ocular Muscle Balance for Near, as Well as for Distant Vision. Samuel Theobald, Baltimore.
40 Infantile Paralysis of the Abdominal Muscles; with Report of a Case. Wm. Burgess Cornell, Towson.
41 *The Diagnostic Value of Tuberculin in Orthopedic Surgery. W. S. Baer and H. W. Kennard, Baltimore.
42 A Practical Method of Demonstration. W. J. Calvert, Co-
43 Effect of the Bile on the Ester-splitting Action of Pancreatic Juice. Albion W. Hewlett, San Francisco.
44 Case of Right-sided Infantile Hemiplegia, with a Description of the Pathologic Changes Found in the Brain and the Spinal Cord. Robert Reuling, Baltimore.

37. **Pathology of Fat and Fatty Degeneration.**—Christian has found that visually demonstrable fat is present normally in very many cells of the body, while extracted fat occurs in practically all of the tissues. Under abnormal conditions the visually demonstrable fat appears in the cells in increased amount and is always an index of cell injury. With regard to fatty infiltration and fatty degeneration, he says that fatty infiltration is the physiologic appearance of fat in normal cells, and that fatty degeneration is the appearance of fat in injured cells; the fat is an index rather than the direct result of cell degeneration. However, in both conditions the origin of the fat is probably the same, coming from without the cell by transport from fat depots elsewhere, but it may arise within the cell from fat related bodies, not from proteid.

41. **Tuberculin in Orthopedic Surgery.**—Baer and Kennard detail the results they have obtained from the use of tuberculin in orthopedic surgery. Forty private patients were injected. The cases were selected almost invariably in order to clear up the diagnosis. Twenty-five gave a positive and 15 a negative reaction. Of the former, 6 were subsequently operated on and all proved to be tubeculous. In 18 of the remaining 19 cases the diagnosis was verified by the subsequent history and the response to treatment. The remaining case is a recent one and therefore not available. Of the 15 patients who did not react, one was operated on and no evidence of tuberculosis was found; of the other 14, 8 have receovered under non-tuberculous treatment; the remaining 6 are improved and all suspicion of tuberculosis has been removed. Radiographs were taken of 15 of the 25 cases which reacted to tuberculin. Six

showed a focus, in 5 the disease was suspected only, and 4 showed no lesion. The authors consider tuberculin the best and most reliable diagnostic agent for incipient tuberculosis of bones and joints. Its proper administration is attended by no permanent, harmful effects. The dosage is variable, but it is rarely necessary to give more than six milligrams. The local signs following the use of tuberculin they consider of equal, if not greater, importance than the general reaction in bone and joint tuberculosis. Previous to the injection of tuberculin, the local seat of disease should be examined carefully for all signs of the suspected trouble. In response to the tuberculin, if tuberculosis be present, all the local signs of the disease will be distinctly increased; that is, motion will be more limited, the deformity will be greater; tendinous and muscle spasm will be exaggerated, and local temperature may be increased. Tuberculosis practically always reacts to tuberculin. Although radiography is of value in the diagnosis of these conditions, the use of tuberculin permits of an earlier and more positive diagnosis than the *x*-ray.

St. Paul Medical Journal.

January.

45 *A Method of Total Excision of the Ureter, with a Few Incidental Remarks on Kideny Tuberculosis. Arnold Schwyzer, St. Paul.

46 *The Control of Smallpox. H. M. Bracken, Minneapolis.

45. **Total Excision of the Ureter.**—The value of Schwyzer's method lies in the reduced amount of disturbance of the tissues, in the reduced size of the abdominal incision, and in the greater feasibility of a complete excision of the ureter, as compared with other methods. In cases of firm addhesions of the ureter to the surrounding tissues, or of advanced tuberculous periureteritis, it can not be employed. To better illustrate the method, Schwyzer mentions the case in which it was used. The patient, a woman, aged 23 years, was found to be suffering from a right-sided tuberculosis of kidney and ureter, with secondary infection of the bladder, and with the left kidney not beyond suspicion. Inasmuch as something had to be done, he decided on a preliminary exposure and exploration of the kidney. An incision was made four inches long, parallel to the costal border and an inch below the twelfth rib, beginning just outside the sacrolumbalis muscle. The fat capsule of the kidney was very dense, so that it was with difficulty that the kidney was separated from it. The kidney was rather large, and the fibrous capsule was ragged. A small incision was made into the convex border of the kidney. Through this a very soft silver probe was passed well down into the ureter, nothing but blood escaping from the wound. A large, soft-rubber catheter was passed through this opening and down about three inches into the ureter. It was left there for drainage. The abdominal walls were closed up to one inch for drainage. A week after the nephrotomy, he excised the kidney and ureter. With the patient in the lithotomy position, an incision, a little over one inch long, was made into the right vaginal vault over the region of the ureter. The ureter was somewhat freed, and a blunt hook was introduced over it. It was then dissected out of the bladder wall. Its end was caught and the bladder wall sutured with catgut. A string was tied to the free end of the ureter. The stitches were removed from the former lumbar incision, which was extended to five and a half inches in length, the anterior end of the incision being two cm. and seven cm. above the anterior superior spine. The kidney was freed and the ureter dissected out with the fingers for a considerable distance. The renal vessels were tied and the kidney cut off from them. The kidney was now outside of the wound and free, except from its attachment to the ureter. Two fingers of the left hand were next inserted down along the ureter, while two fingers of the right hand worked themselves through the incision in the right vaginal vault, also following the ureter. The fingers of the two hands worked about the ureter until they met. They were helped in their freeing action by the assistants pulling on the lower end of the ureter and alternately on the kidney. A small drainage tube was left in the vaginal opening. A drainage tube with gauze was placed in the upper wound, and the lumbar incision was closed, except about the drain. The patient is having a troublesome convalescence. Where the distance from the nephrectomy incision to the incision in the vaginal vault is much too great for the fingers of the operator, a small incision, just allowing two fingers to pass, could be made above Poupart's ligament, and the ureter, held in tension by pulling, can easily be reached and found extraperitoneally over the border of the iliac vessels. From there the fingers of the two hands will reach each other with ease and work bimanually. In order to use the same method in male patients, a perineal section would be necessitated, a much more complicated operation than the one in the female.

46. **Control of Smallpox.**—Bracken believes that statistics the world over have demonstrated fully that the proper enforcement of vaccination will prevent the occurrence of smallpox. And that it has also been demonstrated, that it is impossible to control smallpox by any known method of quarantine. Recognizing these facts as true, efforts to control this disease should be based on vaccination rather than on quarantine. Without vaccination there is no reason why smallpox in time should not again become as great a scourge throughout the world as it was in the prevaccination era. Compulsory vaccination laws are important. These should be demanded by the laity. Physicians should use their influence in favor of vaccination, but they should not place themselves in a false light by trying to force legislation demanding compulsory vaccination laws. Such laws should be demanded by the people as a means of self protection. However, if the people choose to follow the leadership of faddists against vaccination, rather than the scientific teaching and actual demonstrations in favor of vaccination, then on the people should rest the responsibility for the consequences resulting from failure to protect against smallpox by means of thorough vaccination. Bracken states emphatically that quarantine is either evidence of a lack of scientific knowledge as to the proper means to be employed in the control of a communicable disease, or inability to apply such knowledge. Therefore, the attempt to control smallpox by means of quarantine should be abandoned, for it is unscientific, impracticable, expensive and an absolute failure. The present methods of quarantine for smallpox should not be discontinued suddenly, but after a sufficient time has elapsed to permit of the creation of compulsory vaccination laws.

Ophthalmic Record, Chicago.

December.

47 Glioma of the Pons, with the Eye Symptoms and Report of the Autopsy in a Child Seven Years Old. Casey A. Wood, Chicago.

48 Tuberculosis of the Choroid: Perforation of the Sclera; Extension Posteriorly with Involvement of the Optic Nerve; Histologic and Bacteriologic Examination of the Specimen. G. E. de Schweinitz and E. A. Shumway, Philadelphia.

49 Case of Cephalic Tetanus Following a Contusion Wound of the Outer Canthus. A. Maitland Ramsay, Glasgow.

50 *The Combined Treatment in Diseases of the Eye, Especially in That of the Uveal Tract. G. Herbert Burnham, Toronto.

51 Report of a Case of Glaucoma with Operation with Unintentional Result, Which Suggests a Possible Improvement on the Operation of Iridectomy as It Is Ordinarily Performed. J. C. McAllister, Ridgway, Pa.

50. **Combined Treatment in Eye Disease.**—Burnham considers the treatment of various diseases of the eye by a combined method, that is, the internal administration of mercury and potassium iodid, associated with the hypodermic injection of pilocarpin, which he has been using for fifteen years. He finds that it stimulates the nerve centers to a remarkable degree, and through them the ordinary physiologic processes of the affected part or parts especially are aroused to an activity far in excess of the normal, and thus the diseased condition is acted upon and removed. Moreover, this hyperactivity can be regulated and sustained for years, if necessary, by the manner in which the combined treatment is administered. The method has proved unusually successful in the treatment of cases of very severe cyclo-irido-keratitis, failing vision in a rheumatic, acquired syphilitic cyclo-iriditis, hypopyon keratoiritis of the worst type, albuminuric neuroretinitis, cerebral syphilis, choroido-retinitis, and corneal nebula, specific or nonspecific.

American Journal of the Medical Sciences, Philadelphia.

January.

52 Osteogenesis Imperfecta (So-called Fragilitas Ossium). P. William Nathan, New York.
53 *Erythema Infectiosum. Henry Larned K. Shaw, Albany.
54 Case of Amaurotic Family Idiocy. James H. McKee, Philadelphia.
55 Ocular Manifestations in Amaurotic Family Idiocy. Mary Buchanan, Philadelphia.
56 Histologic Examination of the Eyes in a Case of Amaurotic Family Idiocy. Edward A. Shumway and Mary Buchanan, Philadelphia.
57 Pathologic Study of Amaurotic Family Idiocy. William G. Spiller.
58 Case of Carcinoma of the Ureter Apparently Induced by a Calculus Lodged in Its Juxtavesical Portion. William F. Metcalf and Homer E. Safford, Detroit.
59 *Primary Sarcoma of the Bladder, with a Report of Three Cases and Review of the Literature. J. A. Wilder, Denver.
60 *Case of Spontaneous Arrest of Growth in an Endothelioma, with Subsequent Inflammatory Absorption. B. M. Randolph, Philadelphia.
61 The Mental State Associated with Chorea. With Report of Two Cases of Dementia Choreica. A. W. Holsholt, Stockton, Cal.
62 A Report of 281 Mastoid Operations, with Subsequent Results. Hill Hastings, Los Angeles.
63 The Effect of Suprarenal Preparations on Living Protoplasm. Beaman Douglass, New York.
64 The Influence of Suprarenal Extract on Absorption and Transudation. S. J. Meltzer and John Auer.
65 A Study of the Brain Tumors, with Report of Four Cases. Newton Evans, Battle Creek, Mich., and Benton Colver, Dayton, Ohio.
66 Some Practical Observations on Suppurative Hepatitis. William W. Ashhurst, Chihuahua, Mexico.

53. **Erythema Infectiosum.**—Shaw calls attention to a disease which he says has been described independently by several well-known pediatrists and which, in his opinion, has clinical features distinct enough to justify its classification with the acute exanthemata. The priority of recognition as a separate disease entity belongs to Escherich. Erythema infectiosum is a feebly contagious disease, occurring chiefly in children between the ages of 4 and 12 years, with very slight subjective symptoms, and characterized by a maculopapular, rose-red rash, pronounced on the cheeks, legs, and outer surface of the arms. The specific agent is unknown. The disease occurs in epidemics and often follows an outbreak of measles or rötheln. Both sexes are equally affected. It occurs most frequently in the spring and summer months. The period of incubation varies from six to fourteen days. The disease may be ushered in by a slight feeling of malaise, weakness and sore throat, but in the majority of cases the first symptom noticed is the eruption. This is the most important and often the only symptom. It appears invariably on the external skin, usually first on the face, chiefly the cheeks. The skin is hot to the touch, is swollen, but is not sensitive; nor does it itch. The whole appearance is suggestive of erysipelas. The eruption is confluent over the cheeks, and the edges are well defined, slightly raised and distinct from the normal skin. The area of confluent eruption is rather sharply limited in front by the nasolabial folds and above by the temples. Laterally, it extends to the angles of the jaws. Discrete spots are often seen on the forehead and chin. The rash fades from the face after four or five days. On about the second day the eruption makes its appearance on the body, where it is most marked on the outer surface of the legs and arms. The trunk is involved to a much less degree, and may be almost free. The hands and feet are the last portions of the body to be affected. An evanescence is often observed which is perhaps peculiar to the disease. The eruption is not followed by desquamation. No hemorrhage results on pinching the skin. The lymph glands are not enlarged. The subjective symptoms are conspicuous by their absence. Measles can be excluded by the absence of involvement of the mucous membranes, of all constitutional symptoms and of Koplik's spots. In rötheln the rash spreads rapidly over the entire body and is of a different character from that seen in erythema infectiosum. There are also constitutional symptoms.

59. **Primary Sarcoma of Bladder.**—Three cases of this kind are reported by Wilder: 1, a round-celled sarcoma in a man, aged 48 years; 2, a fibro-sarcoma in a man, aged 53 years; 3, a mixed-celled (spindle and round) sarcoma in a man, aged 62 years. While sarcoma of the bladder is most common after middle life and during childhood, it may occur at any age. Of 50 cases studied, 26 occurred after the age of 40, and 14 cases under the age of 10. It is more common in males than in females. The most constant symptom is hematuria. Next in order are the symptoms of cystitis and vesical irritation—strangury, frequent and difficult micturition, small stream, retention, and purulent urine. Emaciation consecutive to the growth is present in advanced cases only. A calculus may or may not be present. As a rule, the disease is more rapidly fatal in children than in adults. The most common location of the tumor is at the base of the bladder in the vicinity of the urethral orifice. It is usually sessile, with a broad base, soft and friable, more or less lobulated, and in some cases has a cauliflower or villous appearance. Metastases, as compared with sarcoma of other parts of the body, seem rare, except in quite advanced cases. At the present time, the only hope for cure appears to lie in the early detection of the neoplasm by means of the cystoscope, or by exploratory incision, and its complete removal at this stage of the disease.

60. **Arrest of Growth and Absorption of Epithelioma.**—Randolph reports a case of endothelioma appearing on the posterior aspect of the left forearm which started in the subcutaneous connective tissue, grew steadily and painlessly for six months, and then, for some unknown reason, became arrested. Necrosis or atrophy of the cells of the tumor took place, and later this inactive tissue began to act as an irritant, exciting a productive inflammatory process which endeavored to remove the foreign mass. There was active hyperplasia, with a very marked round-celled infiltration. Very charcteristic was the development of numerous giant cells. Their peculiar arrangement seemed to show that the function of these cells is an absorptive or phagocytic one.

Pennsylvania Medical Journal, Athens.

November.

67 Address in Medicine, Medical Society of State of Pennsylvania. H. Beates, Jr., Philadelphia.
68 Specialism—Its Evils and the Remedy. B. Reed, Philadelphia.
69 Drugs Versus Other Methods of Treatment. T. W. Grayson, Pittsburg.
70 Medical Life in Arctic Alaska. E. W. Kelsey, Philadelphia.
71 Mushroom Poisoning. E. S. Berry, Shippensburg.
72 A Study of Progress in Treatment of Skin Diseases. J. R. McCurdy, Pittsburg.
73 Asthma—Its Varieties and Their Treatment. S. S. Cohen, Philadelphia.
74 The Disturbances of Menstruation and Their Significance. E. E. Montgomery, Philadelphia.
75 Remarks on Some New Clinical Methods. H. E. Wetherill, Philadelphia.
76 The Contract Physician; His Use and Abuse. S. Sherrer, Bangor.

December.

77 Damage Suits Against Surgeons. Winters D. Hamaker, Meadville.
78 Treatment of Skin and Glandular Diseases by X-ray. Russell H. Boggs, Pittsburg.
79 Inhibitory Action of the X-ray on Malignant Growths. George C. Johnston, Pittsburg.
80 Tubercular Adenitis Treated by the X-ray. George E. Pfahler, Philadelphia.
81 The Post-operative Treatment of Malignant Disease. R. W. Stewart, Pittsburg.
82 Amnesia, Clinical Report of a Case. C. C. Hersman, Pittsburg.
83 Lax Sanitation—the Cost of It. S. P. Heilman, Heilman Dale.
84 Diagnosis of Major Hysteria. Theodore Diller, Pittsburg.
85 Two Cases of Polyuria Following an Identical Traumatism. J. Chris Lange, Pittsburg.
86 Outdoor Treatment of Tuberculosis at Mont Alto. J. T. Rothrock, West Chester.
87 A Bird's Eye View of the Anti-tuberculosis Work in the United States and Canada. J. T. Rothrock, West Chester.

Ophthalmic Record, Chicago.

November.

88 European Eye Clinics. F. E. Brawley, Chicago.
89 *Carbolic Acid and Ammonia Burns of the Eye. E. Stieren, Pittsburg.
90 Three Cases of Vernal Conjunctivitis. N. Remen, Chicago.

89. See abstract in THE JOURNAL of October 29, p. 1331.

Laryngoscope, St. Louis.

December.

91 Diseases of Salivary Ducts and Glands and Their Treatment: Report of Cases. Robert C. Myles, New York.
92 Grave Hemorrhage Following Tonsilliotomy. L. C. Cline, Indianapolis.
93 Note on the Uses of Rubber in the Treatment of Nasal and Antral Disease. J. Price-Brown, Toronto.
94 What constitutes Proper Nasal Treatment in Chronic Ear Diseases. John A. Donovan, Butte, Mont.
95 Ordinary Tonsilliotomy. Edwin Pynchon, Chicago.

96 Case of Chronic Purulent Otitis Media, Complicated by Chronic Mastoiditis and Jugular Bulb Thrombosis; Operation; Death. James F. McKernon, New York.
97 Tympano-mastoid Operation in Chronic Suppurative Otitis Media. Albert H. Andrews, Chicago.
98 Purulent Otitis Media Complicating Typhoid Fever. Ewing W. Day and Chevalier Jackson, Pittsburg.
99 Diseases of the Maxillary Antrum; Diagnosis and Treatment. Emil Mayer, New York.

Columbus Medical Journal.

December.

100 Diagnosis of Malarial Fever, with Report of Two Cases. John Dudley Dunham, Columbus.
101 Natural and Artificial Immunity. J. Robert Caywood, Piqua, Ohio.
102 Biliary Obstruction. Dan Gray, Ironton, Ohio.
103 A Study of Metabolism in Five Cases of Dementia Precox (concluded). Eugene F. McCampbell, Columbus.
104 Acute Gastro-enteritis (Acute Gastrointestinal Catarrh) in Infancy and Childhood. J. R. Lyon, Zanesville, Ohio.
105 Angina Pectoris—Report of a Case. Mark Milliken, Hamilton, Ohio.

Iowa Medical Journal, Des Moines.

December 15.

106 What Can We Do to Prevent the Sacrifice of the Innocents? D. C. Brockman, Ottumwa.
107 The Iowa State Board of Health Bacteriological Laboratory. Henry Albert, Iowa City.
108 The Psychic Element in Accident Cases. S. A. Spilman, Ottumwa.
109 Traumatic Neuritis. A. O. Williams, Ottumwa.
110 The Railway Eye: Requirements of and Injuries To. Clark W. Hawley, Chicago.
111 Ununited Fractures. L. Schooler, Des Moines.

Woman's Medical Journal, Toledo.

December.

112 Sanitation in Tuberculosis. Sara E. Greenfield, Topeka, Kan.
113 Preventive Legislation in Forensic Medicine. Clark Bell, New York.
114 "Change of Climate" for the Tubercular. Eliza H. Root, Chicago.
115 Tuberculosis in Hospitals for the Insane. Anne Burnett, Mt. Pleasant, Iowa.
116 Over-feeding and Exposure to Cold in a Case of Tuberculosis. Eleanor Lawney, Denver.

Virginia Medical Semi-Monthly, Richmond.

December 23.

117 Bowel Repair in Accidental and Pathologic Lesions in Pelvic and Intra-abdominal Operations. Joseph Price, Philadelphia.
118 Surgical Treatment of Cirrhosis of the Liver. Southgate Leigh, Norfolk, Va.
119 Differential Diagnosis Between Streptococcic and Gonorrheal Pelvic Infections. G. Brown Miller, Washington, D. C.
120 Recent Advances in Anesthesia. Reynolds W. Wilcox, New York.
121 Sarcoma of the Orbit; Report of Cases. E. Oliver Belt, Washington, D. C.
122 Perineorrhaphy and Curettage in a Case of Uterus Septus Three Months Pregnant. Edward T. Hargrave, Norfolk, Va.
123 Case of Monstrosity. Wm. Claiborne Powell, Petersburg, Va.

Central States Medical Magazine, Anderson, Ind.

December.

124 Arteriosclerosis. J. H. Musser, Philadelphia.
125 Nephritis a Curable Disease. J. W. Crismond, Anderson, Ind.

The Medical Fortnightly, St. Louis.

December 10.

126 Physiology and Pathology of Biliary Secretion. H. Richardson, Baltimore.
127 Mumps—Epidemic Parotitis. J. F. Chandler, Forest City, Mo.
128 Metabolism: A Miniature Study of a Miniature (i. e., Microscopic and +) Phenomenon. J. Clements, Nutley, N. J.

Journal of Medical Research, Boston.

December.

129 Fermentative and Agglutinative Characters of Bacilli of the "Dysentery Group." Philip Hanson Hiss, Jr., New York.
130 Life Cycle of the Organism of "Dermatitis Coccidioides." S. B. Wolbach, Boston.
131 Comparative Study of the Blood Corpuscles of Vertebrates. Ernest Linwood Walker.
132 On the Autolysis of Yeasts and Bacteria. Leo F. Rettger.
133 Porous Tops for Petri Dishes. Hibbert Winslow Hill, Boston.
134 Preparation of Broth Cultures for Flagella Staining. Hibbert W. Hill.
135 Effect of Severe Hemorrhage on the Number of Blood Plates in Blood from the Peripheral Circulation of Rabbits. F. L. Richardson.
136 Influence of Cholic Acid on the Excretion of Sulphur in the Urine. Carl L. Alsberg.

Archives of Otology, New Rochelle, N. Y.

December.

137 Surgical Anatomy of the Facial Nerve. H. A. Alderton, Brooklyn.
138 Case of Chronic Purulent Otitis with Cholesteatoma and Numerous Endocranial Complications—Operation—Recovery—Diagnostic Value of Lumbar Puncture. Arnold Knapp, New York.

Medical Examiner and Practitioner, New York.

December.

139 Remarks on the Methods and Purposes of Pension Examinations. S. Houston, Washington, D. C.
140 The Relation of Myocardial and Arterial Changes to Valvular Lesions. H. A. Hare, Philadelphia.
141 Pension Examinations from the Standpoint of the General Practitioner. L. J. Gibbs, Chicopee Falls, Mass.
142 Incidents in the Work of a Medical Examiner. T. H. Bradford, Philadelphia.
143 The Vagus Reflex in Its Practical Application to Life Insurance Examinations. T. A. Mays, Philadelphia.
144 The Function of the Cecum and Appendix. W. MacEwen, Glasgow.

Southern Medicine and Surgery, Chattanooga, Tenn.

December.

145 Chronic Suppuration of the Middle Ear. Frank M. Cunningham, Macon, Ga.
146 Diabetes Mellitus Following Trauma. Alexander G. Brown, Richmond.
147 Fractures at and Near the Elbow Joint. J. B. Murfree, Murfreesboro, Tenn.

Dominion Medical Monthly, Toronto.

December.

148 Address, Canadian Medical Association. R. E. McKechnie.

University of Pennsylvania Medical Bulletin, Philadelphia.

December.

149 The Charity School of 1740—The Foundation of the University of Pennsylvania. C. W. Dulles, Philadelphia.
150 Central Perforation of the Perineum. W. R. Nicholson, Philadelphia.
151 Care of Surgical Cases in the Gynecological Department of the University Hospital. B. M. Anspach, Philadelphia.
152 Value of Anatomy in the Training of the Surgeon. G. G. Davis, Philadelphia.
153 The Course in Physical Diagnosis for Second-year Students in the University of Pennsylvania. A. A. Stevens, Philadelphia.
154 Case of Cancer of the Esophagus Simulating Thoracic Aneurysm. J. A. Scott, Philadelphia.
155 Wire Nail in the Appendix Removed Postmortem. J. A. Lyon, Philadelphia.
156 Case of Uncinariasis. M. H. Purcell and C. A. Fife, Philadelphia.

California State Journal of Medicine, San Francisco.

December.

157 The Ideal of Accuracy in Medical Work; Its Importance and Its Limitations. Richard C. Cabot, Boston.
158 A Contribution to the Study of Varicocele. Dudley Tait, San Francisco.
159 Treatment of Typhoid Fever (Continued). Ray Lyman Wilbur.
160 Myocarditis, with Special Reference to Disordered Metabolism (Continued). W. W. Kerr, San Francisco.
161 Posterior Gastroenterostomy for Simple Conditions of the Stomach. Thomas W. Huntington, San Francisco.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London.

December 31.

1 Operations for Diseases of the Uterus and Solid Ovarian Tumors. James Swain.
2 *A Tubal Pregnancy of Some Years' (?) Duration. Sac Containing Macerated Fetus; Fistulæ Between Sac and Bowel and Between Sac and Bladder; Laparotomy; Death. E. H. Fenwick, London
3 The Value and Significance of Certain Signs and Symptoms of Pancreatic Disease. B. G. A. Moynihan.
4 The Lymph Flow from the Pancreas. F. A. Bainbridge, London.
5 *Preliminary Note on the Bacteriologic Findings in Seven Cases of Enlarged Prostate. L. S. Dudgeon and Cuthbert Wallace, London.
6 Remarks on a Case of Gummata of the Heart: Death from Heart-Block; Rhythmical Contraction of the Auricles During the Long Pauses. Henry Handford.
7 Anthropometric Investigation of Hospital Patients (concluded). F. C. Shrubsall.

2. **Tubal Pregnancy of Years' Duration.**—Fenwick's patient, aged 45, had a large abdominal tumor, fecal urine, pneumaturia, hectic temperature of long duration, and great emaciation and cachexia. On cystoscopy the bladder was found comparatively healthy, but was bulging forward, and under the prominence was a fistulous opening. He made a diagnosis of suppurating ovarian dermoid and cut into the tumor above the pubes. It was evidently intraperitoneal, but adherent to the abdominal wall so that the peritoneal cavity was not opened. Pus, feces and gas escaped in large quantities. After thorough irrigation a bare fetal femur appeared at the incision and then a humerus. A mascerated fetus was felt lying in a puddle of feces, pus and liquid rottenness. Parts of the skull bones were adherent to the walls of the sac and had to be peeled off with some force. The bowels were adherent to the sac and greatly softened. Fenwick packed the cavity of the sac, but the patient died in a few hours. Shortly before her death the patient stated that eight years ago she became

pregnant, and when she was decidedly big she made arrangements for her confinement. The various symptoms of pregnancy, however, gradually disappeared and her abdominal swelling subsided slightly, but for the last seven years she had a large lump in the right side. Three months ago she received a severe blow on this lump, and two days later she had great pain which persisted, causing her to seek medical aid. Postmortem examination showed a left tubal pregnancy which had suppurated, become adherent in every direction and perforated into the bladder and the sigmoid bowel. The sac which had contained the fetus could not be dissected away from the hollow viscera which surrounded it. The bones of the fetus were examined and found to be about the fifth month.

5. **Bacteriology of Enlarged Prostate.**—Dudgeon and Wallace made careful examinations of seven enlarged prostates, with a view to ascertaining whether the condition is the result of infection or not. In 5 of the 7 cases unmistakable signs of infection were found, consisting of pure cultures of the staphylococcus albus in 3 cases and bacillus coli communis in 2. In one of the latter diplococci were also found present. In some instances the infecting organisms were the same as those found in the urine. The authors conclude that, to a certain extent, the results obtained support the view that the initial lesion in prostatic enlargement may, in certain cases, be a septic infection from the bladder.

The Lancet, London.

December 31.

8 The Treatment of Phthisis. Hector W. G. Mackenzie.
9 *Treatment of Streptococcic Puerperal Fever by Antitoxic Serum. Alexander G. R. Foulerton.
10 *Case of Streptococcic Puerperal Infection Treated with a Special Puerperal Antistreptococcic Serum; Recovery. Thomas Rose.
11 *Administration of Antistreptococcic Serum. J. W. Thomson Walker.

9. **Antitoxic Serum in Streptococcic Puerperal Fever.**—Foulerton has found that the relative importance of streptococci in puerperal infections is even more marked than a consideration of previous bacteriologic researches on the subject appears to indicate. He and his associate, Dr. Bonney, have found streptococci of one sort or another in the uterus in 46.3 per cent. of a series of 54 cases examined, and in these cases the organisms were found under conditions which indicated that they were the primary cause of the fever. Excluding the less severe cases of fever occurring after childbirth, and considering only those which either ended in death or were clinically of a distinctly serious nature, they found streptococci present as the presumable cause of disease in 62.5 per cent. Up to the present time they have dealt with 25 stains of streptococci isolated from the same number of cases of puerperal fever, and they have satisfied themselves that among these 25 strains there is more than one distinct species. An antistreptococcus serum was prepared in the ordinary way, the horse having been vaccinated with 5 of the strains. As yet this serum has been used in only a few cases, but among them there have been 2 cases of recovery after extremely severe forms of streptococcus infection. Apart from the failure of serum treatment in puerperal fever arising from uncertainty as to the particular strain of streptococcus which is present, the question of the dosage of the serum employed is of considerable importance. Regarding the matter entirely from the clinical point of view, it would seem that the action of an antistreptococcic serum is purely antitoxic and that the infecting bacteria remain unaffected by the serum and continue to elaborate their specific toxins. In order to neutralize these toxins which are being continuously thrown into the patient's circulation, repeated doses of the serum must be given until the infection comes to a natural termination. Foulerton says it is advisable to commence treatment with an injection of at least 20 c.c., and one must be prepared to repeat this dose, if necessary, at least every twenty-four hours. If no improvement follows two doses of 20 c.c. each, administered within twelve hours, it is useless to persist in administering it. Another brand of serum should at once be tried. Large doses are necessary for any success.

10. **Ibid.**—Rose reports a case of an extremely severe type of streptococcic infection in which there seemed to be no doubt that ultimately recovery was due to the action of an antistreptococcic serum.

11. **Administration of Antistreptococcic Serum.**—Walker finds that the injection of antistreptococcic serum in cases of pure streptococcal infection has been followed by strikingly beneficial results. The variability in the results of the serum unquestionably has been due to the selective activity displayed by the antitoxin of each variety of streptococcus, or to the serum being used too late or having lost its activity from staleness. More uniform results are likely to be obtained from the present compound antistreptococcic serum than from the earlier forms, from the prompt injection of serum at the commencement instead of near the close of a severe infection, and from the use only of serum which has been recently prepared. The administration of the serum for some days after the general symptoms have disappeared in order to avoid a recrudescence. The question of dosage must be judged by the nature of each case and the effect obtained by the injection, but it is important to know that large doses spread over several days have been used without ill effect. The most rational method would seem to be that of a large injection (from 20 to 25 c.c.) on the first occasion, followed by smaller doses as the case may require.

Indian Medical Gazette, Calcutta.

December.

12 *Further Notes on the Treatment of Leprosy by Injections of Leprolin. E. R. Rost, Rangoon.
13 A Short Account of the Various Trypanosomata. A. Lingard.

12. **Leprolin in Leprosy.**—Rost makes a further report on the treatment of leprosy by injections of leprolin. About 120 cases are being treated in Burma. Up to date 14 cases have been discharged as cured at Rangoon. Of 56 cases being treated by Rost 20 have so much improved that they may be said to be almost cured. In every case there has been marked improvement. The order of improvement is usually, first, a return of perspiration in a part previously dry, and then a return of sensation. This return of sensation may be only transient or it may be permanent. But ultimately it always returns on continuing the treatment. Second, there is a gain of strength and loosening of the contractions of the fingers and toes. Cases which have had very severe deformity and loss of power through contraction have completely regained their power and lost the deformity. Ulceration may give way to healing at once. In some cases thickened, hard epidermis has to be cut away before the ulcer heals. Nodules are usually slow to disappear. The color of the skin returns slowly. The pains in the limbs generally vanish early. The mental condition improves remarkably and with this the physiognomy improves. Local reactions after injection vary very much. Rost has given over 1,000 injections, and in no case was there any bad result nor was the disease enhanced thereby. In nearly all the cases the improvement has been obvious; in a few it is rapid, but in the majority the improvement has been slow, but steadily maintained. In some cases he has given as many as sixteen injections, and some cases did not show any sign of improvement until after the sixth injection. The difficulty in making a leprolin of constant strength makes it imperative to increase the dose if it is not found to cause a reactionary fever of over 100 F. The interval between the injections has been restricted to ten days, as some few days seem necessary to allow the patient to recover after the fever, besides which a too rapid recovery must not be expected in a disease which is so remarkably chronic. Evidently the action of leprolin is an antitoxic one and not an auto-antitoxic one. A detailed report of cases pronounced cured is appended to the article.

Revue de Chirurgie, Paris.

Last indexed XLIII, page 1907.

14 (Year XXIV. No. 12. December.) Cas de fistula du canal thyréoglosse (etude clinique et histologique). V. Cornil and Ed. Schwartz.
15 *Influence of Displacement of Kidney on Colon.—Dispositions vicieuses du colon ascendant provoquées par l'abaissement du rein droit: leur mécanisme et les conséquences probables de leur traitement rational. P. Alglave.

16 *Les plaies operatoires du canal thoracique dans la région cervicale (operative injury of thoracic duct). P. Lecène.
17 *Perforation de l'estomac par ulcère (of stomach). F. Gross and G. Gross (Nancy). (Commenced in No. 2.)
18 *Cancer de la thyroide (fréquence, formes cliniques, traitement). Xavier Delore. (First part in Nos. 5 and 10.)

15. **Influence of Displacement of Kidney on the Ascending Colon.**—Alglave noticed in dissecting a cadaver that the cecum was displaced, swollen and compressed by a movable kidney. The functions of the cecum must have been seriously interfered with during life. Search for similar conditions in other cadavers showed 4 cases in the course of a few days, all in female subjects. He gives a number of illustrations of the findings, showing how the kidney, as it becomes displaced downward, drags down with it the adherent organs and especially the right angle formed by the colon. This kinks the colon. The consequent digestive and intestinal disturbances are not due directly to the displacement of the kidney, but the latter is the indirect cause. Nephropexy removes this cause, but, he adds, it is not always sufficient to remedy the conditions that have become installed, the kink in the colon frequently persisting unmodified by the nephropexy alone. If the kinked loop is much damaged, it may be necessary to exclude the ascending part of the colon by ileo-colostomy or ileo-sigmoidostomy. The latter is especially indicated when the liver is also displaced downward, and does not permit the intestine to resume its normal place.

16. **Operative Injury of Thoracic Duct.**—Lecène reports a personal case and reviews 21 in the literature. Operative injury of the cervical thoracic duct is not always perceived at the time of the operation, although the escape of lymph or chyle from the wound usually attracts attention. The patient suffers from thirst, emaciation, general asthenia and sometimes oliguria, the dehydration of the organism causing choleriform symptoms. Only one of the cases on record terminated fatally, and this was in 1875. If the injury is discovered at once, a ligature should be thrown around the peripheral stump of the severed duct. Ligature of the central stump is generally superfluous, as the valves are sufficient. Ligation of the peripheral stump does no harm, as has been established by clinical and experimental experience. The duct was sutured in one instance (Cushing), but this is indicated only in exceptional cases. If the injury is not discovered until later, pressure applied to the wound after removing the drain will generally result in a rapid cure. The wound may be opened and a ligature applied on the duct, and this has been done in some instances, but it is rather difficult and it is easy to cure without it. The suecess realized by simple, firm tamponing has been so complete that many authors advocate it, instead of ligation, for all cases, but Lecène would reserve it for the cases in which the injury was not noticed until later.

17. **Perforation from Gastric Ulcer.**—Gross' monograph has been running through the year, with an exhaustive survey of the literature, concluding with summaries of the details of 403 surgical cases. He has operated on 2 cases, with fine results in one instance. In this case there had been no melena nor hematemesis, and no bleeding point was found near the perforation, consequently the latter was merely sutured, without excision, in two tiers with fine silk. The peritoneum was then sponged dry. A drain was left in contact with the wound and another in the Douglas cul-de-sac. The patient was a farmer, 47 years old, a hard drinker, with stomach symptoms for two years. The success was evidently due to the fact that the operation was undertaken within three hours of the perforation. The stomach contents had not had time to induce inflammation of the peritoneum.

18. **Cancer of the Thyroid.**—Delore of Lyons states that cancer of the thyroid gland is particularly frequent there. He has observed 14 cases during the last three years, and Billiard has collected 83 from the hospital records, 15 in one-half year. The overwhelming majority are in women, and the subjects are generally younger than those with other forms of cancer. In a few cases developing at puberty, the course was fulminating. There is evidently a close connection between the cancer and preceding goiter.

Semaine Médicale, Paris.

19 (XXIV, No. 52, December 28.) Application des principes de la Convention de Genève aux navires hospitaliers (to hospital ships).
20 *Des dangers de l'emploi du naphthol camphré dans la pratique courante. Cazin and Hallion.
21 *Les formes graves de la constipation et leur traitement chirurgical. F. Lejars.

20. **Dangers of Camphorated Naphthol.**—Guinard has recently reported a case of death less than an hour after injection of 25 c.c. of camphorated naphthol into a supra-clavicular cold, ganglionary abscess. The patient was a young man of 28. Guinard has found records of 12 similar fatalities after the use of this substance. There is a still larger number of cases on record in which convulsions and other symptoms of intoxication occurred, although the patients recovered. The doses were usually large, but in some of these cases not more than .5 c.c. had been injected, and half this amount in the case of one child. Desesquelle, who first used camphorated naphthol, expressly insisted that .2 c.c. for an adult and .1 c.c. for a child was the maximum daily dose. Disregard of his directions has led to accidents. Cazin and Hallion have been studying its toxic action on laboratory animals, and their results corroborate the experiences in the clinic. They conclude that one or two drops are enough for a ganglionary abscess, and a few drops in the drain tube leading to the peritoneum or pleura—no more under any circumstances. With these restrictions, camphorated naphthol can retain its place in the treatment of various affections in which it has proved its usefulness.

21. **Surgical Treatment of Severe Forms of Constipation.**—Lejars reviews some recent articles on this subject and styles constipation the "ill of the century." Surgical intervention, suppressing part of the large intestine, excluding or excising it, is a comparatively simple and benign operation, when done in two operations, first curing the stercoremia before completing the task. He adds that the large intestine, like the appendix, is an ancestral organ, ill suited for the conditions of modern life, and that it is destined to retrogress, atrophy and finally disappear. Like the appendix, its only function is becoming more and more merely a pathologic function. Surgery, in removing these organs, merely hastens the natural progress of evolution.

Berliner klinische Wochenschrift.

22 (XLI, No. 51, December 19.) Digalen, ein Ersatzmittel des Digitalis-Infuses (substitute). E. Bibergeil.
23 *5 Fälle von Tumoren des Central-Nerven-Systems. Graeffner.
24 *Ueber hysterische Schlafzustände (sleep). Raecke (Kiel).
25 *Ueber Hypochondrie und hypochondrische Zustände. A. Schott.
26 *Psyche und Psychose. P. Kronthal. (Commenced in No. 50.)
27 Vorläufige Mittheilung über Syphilis-Impfung am Pferde (inoculation of horse). Piorkowski.
28 *Zur Prognose und Therapie des Diabetes mellitus. de la Camp.
29 (No. 52.) Mechanismus der inneren Darmstrangulation (strangulation of intestine). J. Kertesz.
30 *Syphilis as Professional Affection of Physicians.—Syphilis als Berufskrankheit der Aerzte. A. Blaschko (Berlin).
31 Tests of Illumination of Rooms.—Vereinfachung der Helligkeitsprüfung in geschlossenen Räumen. W. Albrand.
32 Vortheile und Nachtheile des Ficker'schen Typhus Diagnostikums (advantages and disadvantages). W. J. Guttler. (Commenced in No. 51.)
33 Practical Progress in Physicotherapy.—Staungshyperämie; Wärme und Kälte; Gas- und Wechselstrombäder. A. Laquer.

23. **Brain Tumors.**—In 2 of the 5 cases described the tumor was a cholesteatoma at the base of the brain. The patients were 40 and 45 years old; the structure of the tumors, their location and relations to the brain, and the microscopic and chemico-microscopic findings, sustain the assumption that cholesteatomata of the central nervous system originate in aberrant fetal epidermis germinal tissue.

24. **Hysteric Sleep.**—Raecke reviews 23 cases of hysteric sleep or somnolency. In 10 it had been preceded by hysteric convulsions; in 7 there were attacks of lethargy, while 6 others presented a protracted hysteric stupor which only at times appeared to be sleep, and alternated with periods of delirious confusion or general inhibitions with partial loss of consciousness. Hysteric conditions may be differentiated from

epileptic similar conditions by the behavior during the intervals and by the history of the case, with examination of the pupil and of the tendon reflexes and evidences of old injuries, scars on the tongue, recent bruises or ecchymoses and the Babinski sign. It is difficult sometimes to distinguish between hysteric and catatonic stupor, but hysterics are more liable to assume comfortable positions, to attend to their bodily needs, to rouse at mealtimes and to display a certain amount of interest in their surroundings. Positive differentiation is possible only when the existence of hysteria can be determined aside from the stupor.

25. **Hypochondria.**—Schott regards hypochondria as an expression of degeneration, and warns against medication for it as a rule. When it accompanies a curable psychosis, it generally presages a protracted course. All peripheral sources of irritation should be removed in case of hypochondria so far as possible, and it should be borne in mind that the hypochondriac is liable to commit suicide or to injure himself or those around him.

26. **Psyche and Psychoses.**—Kronthal argues that the nervous system is a collection of innumerable routes for reflex action. The centers in the brain are merely the points where the circuit is closed between the sensory and the motor nerves. He asserts that the entire nervous system is merely a combination for the conduction of stimuli. This explains the decussation of nerves, as their crossing multiplies the number of possible reflexes. The sum of all the reflexes is the psyche. When an individual reacts in an abnormal manner to the impressions of the outer world we call the condition a psychosis. He adds further that sleeping and waking have nothing to do with the central nervous system. The individual sleeps when his cells are weary, intoxicated and unable to react further. He wakes when his cells have recuperated. He dreams when his cells react imperfectly to stimuli. Psychoses can occur without any participation of the nervous system. As the psyche is the sum of all the reflexes, a psychosis is inevitable when a number of the elementary organisms, the cells constituting the individual, respond to stimuli with an abnormal reaction. The reactions throughout the body become different with a varying temperature. In fever we should, therefore, expect an altered sum of reflexes, an altered psyche, and we find it in the delirium of fever. In alcohol intoxication likewise, the cells behave differently from normal, and the sum of the reflexes—the psyche—is likewise abnormal. When certain of the cells respond sluggishly and others with excessive excitability, we call this condition hysteria. He reviews the conditions in other affections viewed from this standpoint, affirming that this theory supplies a solid scientific basis for treatment of psychoses. They are merely the morbidly altered reaction of the individual, the result of a morbidly altered condition of the body. If we can succeed in making the body react normally once more then the psyche, the sum of the reflexes, will become normal again. There is nothing mystic about the psyche. It is merely the sum of the reflexes, and study of physiology and allied sciences is making physicians better and better acquainted with the reflexes and with the means of influencing them.

28. **Prognosis and Treatment of Diabetes.**—De la Camp reviews recent progress in this line, dwelling particularly on Naunyn's axioms: "The assimilating capacity of a diabetic decreases with persistent glycosuria," and "The assimilating capacity improves with persisting aglycosuria." They emphasize the importance of reducing the output of sugar as the main essential in treatment. Naunyn further affirms that every diabetic who requires treatment at all, should have his diet regulated both as to quality and quantity. It often happens that a patient is seen for the first time after some trauma, excess or other injurious influence, and the affection is supposed to be severe when it subsides afterward into a much milder form. Others give the impression of being mild, but grow rapidly worse. Such subjects are generally young. Even when the diabetes apparently subsides completely, it probably still persists in a latent form. The glycosuria may vanish when nephritis becomes installed, but this is no gain for the diabetic. Pregnancy is an unfavorable complication. Roff states that 50 per cent. of pregnant women suffering from diabetes succumb in coma. Progress has been realized in the dietetics of diabetes by von Noorden's discovery of the remarkable tolerance of diabetics for oatmeal. (See THE JOURNAL, xli, page 1374.) De la Camp has observed a case in which a woman, 35 years old, gained over ten pounds in weight in three weeks on a daily ration of 250 gm. oatmeal, 100 gm. butter and 4 eggs, a total of 2,500 calories. She had 8.1 per cent. sugar in 3,200 c.c. urine smelling strongly of acetone. The output of carbohydrates was 259, with an intake of 293. She was given from 20 to 60 gm. of sodium bicarbonate a day, the larger amount being necessary to render the urine alkaline. The output of sugar and the acidosis remained at the same figures, without retention of water.

30. **Syphilis Acquired by Physicians in the Exercise of Their Profession.**—Blaschko states that he has had occasion to observe 12 cases of syphilis in physicians during the last ten years, acquired in the exercise of their profession, 10 in Berlin alone. As the primary sore develops on the fingers as a rule in these cases, it is generally unrecognized and taken for a panaritium. Its nature is first suspected by its protracted course, the bluish infiltration and the aspect of the depths of the lesion. In 2 cases there was mixed streptococcus infection, with a torpid lymphangitis and numerous small superposed buboes. Herpes on the finger, cadaver tubercle and soft chancre present different symptoms, the first being preceded by neuralgia in the nerve involved and the entire process terminating in about ten days. Soft chancre rapidly heals under carbolic acid and iodoform. In other cases the syphilitic primary sore was very small and soon healed without a scar. The outbreak of general symptoms or the development of very large indolent buboes was the first sign that attracted attention. In one case the primary sore was on the face. In another instance a roseola broke out over the entire body without any premonitory signs of trouble, and not a single point of entry for the virus could be discovered on the patient. He was a very careful, conscientious and painstaking physician, and the fact that such a trained observer was unable to discover the portal of entry for the virus suggests the possibility of a syphilis without the primary lesion, the *"syphilis d'emblée"* of the French. The infection seems to have been generally acquired during the extirpation of a bubo or something of the kind. None was referable to infection from an instrument which had recently been used on a syphilitic subject, although such a possibility should never be ignored. The erosions at the base of the nails from scrubbing were generally the entering point. The danger from this source is particularly great in case of abortions or of premature births, as these so frequently occur in syphilitic women. In one case infection was unmistakably derived from dissection of a syphilitic cadaver twenty-four hours after death. Blaschko urges that every physician should bear in mind the possibility that the patient before him may be a syphilitic in every case in which he has to use the knife or to make a bimanual examination. At present only those particularly engaged in practice among syphilitics ever seem to think of this possibility. Modern methods of cleaning the hands invite erosions, etc., and he thinks that too little stress is placed on cleansing the hands *after* operations, and that they suffer from the excessive scrubbing before. Every wound, every crack, should be carefully covered. His practice is to touch them with a 2 to 3 per cent. solution of silver and thus produce an impermeable covering of silver albuminate. This he covers with a small scrap of adhesive plaster with collodion outside or, better still, a finger cot. He advises rubber gloves or cots for all gynecologic examinations in the interests of both patients and physician. When infection has once occurred, silver nitrate and sublimate, even at once, have proved ineffectual to abort the process. His practice is to rinse the scratch copiously with water and then pour tincture of iodin into the wound. Possibly hydrogen dioxid might be effectual. He once used on himself an electrolytic needle when he received a scratch while

puncturing a bubo. He burned out the spot the next day with the actual cautery and never has heard anything further from it. He believes in treating syphilis only when indicated by symptoms. His medical patients were inclined to err on the side of excessive treatment, and severe physical and psychical depression was the result in some instances. He thinks that the fact of the existence of the syphilis need not interfere with the subject's professional work under certain obvious restrictions as, for instance, when there are lesions on the hands. The physician himself is usually the best judge as to this. He does not know of any instance in which the disease was transmitted farther by the physician affected. His family life suffers more than his professional, but the medical profession, Blaschko adds, frequently requires great sacrifices from its members, and experience has shown that they are borne with courage and dignity even under these circumstances.

Münchener medicinische Wochenschrift.

34 (LI, No. 49, December 6.) *Zur vaginalen Ovariotomie. O. Bürger.
35 Ueber die Anwendung des Pyramidon beim abdominal-Typhus. H. v. Krannhals (Riga).
36 No Restriction of Visual Field by Suppuration in Accessory Cavities.—Bedingen Eiterungen der Nasennebenhöhlen eine Einengung des Gesichtsfeldes? Henrici und Haeffner.
37 Zur Kasuistik der kongenitalen Onychogryphosis. C. Müller.
38 Ueber die Gefahren der Sublimat-Anwendung in der Geburtshilfe (dangers of sublimate in obstetrics). E. Toff.
39 Kollargol-Pinselungen bei Angina und Diphtherie. K. Justi.
40 Ein Universal-Suspensorium. Bernstein.
41 (No. 50.) *Was leistet die Leukozyten-Untersuchung im Frühstadium der Appendizitis. Federmann.
42 *Ueber intermittierende cystiche Dilatation der vesikalen Ureter-Enden. F. König.
43 *Zur Behandlung der knöchernen Versteifung des Ellbogengelenkes (ankylosis of elbow). A. Schanz.
44 *Ueber Klima und Lungen-Tuberkulose. G. Besold.
45 Antipyrin Colored Sweat.—Ueber einen Fall eigentümlicher Schweissabsonderung. N. Platter.
46 *To Prevent Overlooking Sponges in Operations.—Zur Verhütung des Zurücklassens von Kompressen in der Bauchhöhle. Calmann.
47 Ein neuer dermatologischer Universal-Thermokauter. J. Weinberg (Berlin).
48 *Heredity of Syphilis.—Ein Beitrag zur Lehre von der Vererbung der Syphilis. Jesionek. (Commenced in No. 49.)
49 Vaccination in Bavaria.—Bericht über die Ergebnisse der Schutzpockenimpfung im Königreiche Bayern im Jahre 1903. L. Stumpf.

34. **Vaginal Ovariotomy.**—Bürger reports from Schauta's clinic 110 cases of ovariotomy by the vaginal route. The contraindications accepted are the same as in other clinics, with the exception that Schauta prefers the vaginal operation even for cysts filling the entire abdominal cavity, if there are no contraindications of other kinds. The particulars of the various groups of cases are described, the results, immediate and remote, confirming the opinion that vaginal ovariotomy is a harmless operation, with a rapid and smooth recovery, which does not entail any appreciable consecutive disturbances. Menstruation recurred in the 22 women examined in this respect in an average of about five weeks, while the average after abdominal ovariotomy has been ten and eleven weeks in his experience.

41. **Leucocyte Count in Appendicitis.**—Federmann emphasizes that a high leucocytosis in the first days of appendicitis indicates that the organism is actively at work struggling with its invaders. An operation undertaken in these conditions has a good prognosis. His experience has been that a high leucocyte count indicates a severe infection, but is no criterion as to the presence of pus.

42. **Intermittent Dilatation of End of Ureters.**—König writes from Altona to describe a case of urinary disturbances in which the cystoscope showed that the vesical end of the ureters became intermittently dilated, forming a cyst, which finally emptied its contents under vigorous contractions of the bladder wall, the cyst subsiding completely, leaving the orifice normal. The lower end of both ureters was evidently dilated and as urine accumulated the cyst formed. He has found 50 similar cases recorded in the literature. His patient was an otherwise healthy man who had suffered from childhood with desires to urinate and difficulty in urinating. During the last year blood and hemoglobin were noted in the urine after exertion. Garré operated on such a case, curing his patient, a young man, of serious urinary disturbances.

43. **Cure of Stiff Elbow.**—Schanz operated on the elbow as usual, but to prevent recurrence of the ankylosis, he interposed between the raw surfaces of the bones a pedunculated flap of subcutaneous adipose tissue, tying it in place so that it could not slip out. The cast was removed in about a month; in three weeks the patient could use her arm freely and in three months after the operation could brush her hair, eat, etc., with apparently normal function of the arm. There was no pain at any time. The thick flap prevented the growth of connective tissue adhesions, while its porous character allowed movements impossible with a denser tissue. It is possible that a kind of bursa may have formed in the fat. He expects to apply this technic to other joints as occasion arises.

44. **Climate and Tuberculosis.**—Besold thinks that better results will be realized when more attention is paid to individualized treatment and less to climate in tuberculous cases.

46. **To Prevent Leaving Sponges in Abdomen.**—Calmann has a long tape fastened to each of his compresses and sponges. The ends of the tapes are taken up in a bunch and tied around one of the legs of the table, at the head, on the side where the instruments are handed to the operator. The tapes are long enough not to interfere with the use of the sponges in any way.

48. **Heredity of Syphilis.**—Jesionek has had occasion to observe several occurrences which have convinced him that the semen of a syphilitic is able to induce contact infection. Also that the semen can transmit the syphilis of the father to the offspring. He thus accepts paternal transmission of the disease and the "choc en retour," that is, infection of the mother from the infected fetus. Among the evidence which he cites to support this view is the family experience of a physician—a trained observer—after professional infection from an obstetric case.

Zeitschrift f. klinische Medicin, von Leyden's, Berlin.

Last indexed XLIII, page 1668.

50 (LIV, Nos. 3-4.) Variations in Experimental Toxic Anemias According to the Age of Organism.—Ueber die durch das Alter der Organismen bedingten Verscheidenheiten der experimentell erzeugten Blutgiftanämien. P. Reckzeh.
52 Vital and Postvital Blood Staining.—Ueber vitale Blutfärbung und deren Ergebnisse bei Erythrocyten und Blutplattchen. H. Rosin and E. Bibergeil.
53 Iodin Reaction of Blood and Blood-forming Organs.—Untersuchungen über die Iodreaction des Blutes und der hemätopoietischen Organe. A. Hirschberg.
54 *Das "kachektische" Leuckocytose; das Verhalten der neutrophilen Leukocyten beim Carcinom. J. Arneth.
55 Fatigue of the Visual Field.—Ueber Gesichtsfeldermüdung. K. Kroner.
56 Acute isolirte interstitielle Myocarditis. L. Sellentin. Two cases.
57 Causes of Death After Removal of Both Kidneys.—Die Ursachen des Todes nach doppelseitiger Nephrectomie. H. Couvée (Utrecht).
58 Colica intestini coeci, ein wohlcharakterisirter, selbstständig auftretender Symptomencompiex. A. A. Christomanos.
59 Iodic Acid Reaction of Acetic Acid in Diabetic Urine.—Iodsäurereaction auf Acetessigsäure im diabetischen Harn. E. Riegler.
60 (Nos. 5 6.) *Der Blutdruck im Verlaufe der Arteriosklerose (blood pressure). T. Dunin (Warsaw).
61 *Verfahren zur Messung des diastolischen Blutdrucks und seine Bedeutung für die Klinik (measurements of diastolic blood pressure). J. Strasburger (Bonn).
62 *Ueber die Bakteriämie und die Bedeutung der bakt. Untersuchung für die Klinik. G. Jochmann (Breslau).
63 Tumor der Hypophysen Gegend mit Obductions-Befund. R. Berger.
64 Die Analyse des Phlebogrammes eines Falles von Herz-Allorhythmie. A. Belski (Pskow).
65 *Ueber Sigmoiditis. T. Rosenheim.
66 *Hematology of Infectious and Other Diseases.—Ueber das Auftreten der Myelocyten im Blute. C. Schindler (Berne).

54. **Cachectic Leucocytosis.**—Arneth tabulates the blood findings in 12 cases of cancer, mostly gastric cancer. They show that secondary anemia and cachexia may develop in case of uncomplicated cancer without much impairment of the leucocytes or influence on their numbers. But the coincidence of a complication affects the leucocytes materially, the blood then presenting the aspect which he has previously described as anisohypocytosis or anisohypercytosis. In one extreme case, the carcinosis involving the entire body, the reds presented the aspect of true pernicious anemia, while the neutrophile leucocytes presented that of leukemia. In future a distinction must be made between the blood findings of uncomplicated cancer and those for which the complications are responsible.

60. **Blood Pressure in Arteriosclerosis.**—Dunin has measured the blood pressure 1,000 times in 440 patients with arteriosclerosis, in his private practice. He used Gaertner's tonometer exclusively. In 120 out of 420 arteriosclerotic subjects he found the blood pressure normal or below. In all the other patients the blood pressure was above normal. In 36 out of 80 cases with low blood pressure angina pectoris was observed. In 8 cases the sharp accentuation of the aortic second sound was the only symptom on the part of the vascular system. The blood pressure in this group was only 90 mm. to 140 mm. The first sound was weak. In 2 patients there was also a diastolic murmur. None in this group complained of any heart trouble. In another group of 14 cases there were pronounced subjective disturbances and corpulence, and changes were found in the heart, or aorta, with signs indicating dilatation of the arch of the aorta and sometimes also of the aortic orifice. A further group of 22 presented the same findings with the exception of the corpulence. In all his cases of normal or low blood pressure the arteriosclerosis was evidently restricted to the large arteries, while the smaller were intact. Most of the patients were middle-aged, although some were quite young. In 35.7 per cent. of 380 cases of arteriosclerosis corpulence was noted, the proportion being higher among the subjects with high blood pressure. Reduction of the corpulence frequently restored the pressure to normal. Functional over-pressure he found very rare. Therapeutic measures to reduce the blood pressure were seldom successful except in cases of corpulence, although the general condition was much benefited by hygiene and measures to tone up the nervous system and the heart muscle. So long as the heart is sound and vigorous the changes in the arteries are effectually compensated. Long-continued over-pressure entails hypertrophy of the left ventricle, although it may not be clinically evident. Measurement of the blood pressure may thus determine the size of the heart better than mere percussion. He found the pulse rapid in 40 out of 136 cases of high pressure. In one instance the pressure was 240, the pulse 200; in another, with a pressure of 250, the pulse was 120. Fully 25 per cent. of these patients were neurasthenics. Tachycardia with high pressure presages the approach of disturbances in compensation.

61. **Measurement of Diastolic Blood Pressure.**—Strasburger's technic differs from Janeway's and Masing's in that he uses the palpating finger instead of the sphygmograph, and, instead of determining the average blood pressure, lays most stress on the extremes found. Comparison of the height of the diastolic pressure with that of the systolic pressure, and determination of the blood-pressure quotient, show the reciprocal relations between the tension of the vessels and what the heart is able to accomplish. The condition of the circulatory system can be ascertained by study of the systolic pressure and of the blood-pressure quotient better than by any means known to date, especially in respect to the functional capacity of the heart and the blood supply in the tissues. He states that such results have been obtainable hitherto only by measuring the blood pressure in the severed artery of a living animal. His "pressure quotient" is obtained by subtracting the diastolic pressure from the systolic, the remainder found being what he calls the "pulse pressure." The ratio between the pulse pressure and the maximal pressure is his "blood pressure quotient." It affords an insight into the relations between the work accomplished by the heart and the resistance in the arterial system. He tabulates the findings in a large number of cases of various affections and in normal subjects. He also shows in a diagram the various conclusions that may be deduced from the different groups of findings.

62. **Bacteriemia.**—Jochmann reviews the results of bacteriologic examination of the blood on a large clinical material. They demonstrate the great importance of this means of investigation, both from a diagnostic and prognostic standpoint and also as a guide for treatment. His findings in 161 clinical cases and 70 cadavers have convinced him that scarlet fever is not a streptococcus affection. As germs in the blood increase rapidly immediately after death, the frequent negative postmortem findings, even in the fulminating cases of scarlet fever, were very significant. His findings were also negative in 18 cases of acute articular rheumatism. Even the exudation aspirated from the joints in 11 cases always proved sterile. The bacteriemia is sometimes the only sign of typhoid fever, and is almost constant during the acme of typhoid. Gonococci were found in the blood in 2 out of 3 cases of gonorrhea, one patient recovering.

65. **Sigmoiditis.**—Rosenheim relates the particulars of 11 cases, showing the importance of direct inspection of the sigmoid flexure in dubious cases of intestinal trouble. It may reveal a local inflammatory process restricted to this region and amenable to treatment. Rest, oil injections, belladonna and morphin aid in inducing a complete cure. Pains in the left side, diarrhea or constipation and fever, sometimes local hemorrhages, may be the principal symptoms. He uses the endoscope when introducing the tube for local medication.

66. **Myelocytes in the Blood.**—Schindler's extensive research has shown that conditions inducing leucocytosis may cause the myelocytes to pass into the blood. This is currently observed in infectious diseases, and has no special significance if the myelocytes vanish as the leucocytosis subsides. If they persist, their presence indicates functional exhaustion of the elements of the marrow. The toxins of certain diseases, typhoid fever and malaria, have an inhibiting action on the leucocyte-forming tissues. The myelocytes appear in this case as the evidences of abnormal reaction on the part of the marrow to the irritation. In malaria, his findings show that the leucocytes increase as the temperature rises and diminish during the intervals. In some cases of malaria the blood findings are exactly like those of pernicious anemia.

Riforma Medica, Palermo.

Last indexed XLIII, page 1830.

67 (XX, No. 43, October 26.) *Sul valore semeiologico dell' urea e dell' ammoniaca nelle lesioni epatiche. S. De Rossi (Baccelli's clinic, Rome).

68 *Per la cura radicale dell' estrofia della vescica (exstrophy of bladder). G. Muscatello (Pavia).

69 Considerazioni terapeutiche intorno a 2 casi di flebite degli arte inferiori (of legs). R. Ottolenghi (Turin).

70 (No. 44.) L'influenza dell' anemia sperimentale nelle infezione. G. Dragotti.

71 Sul carcinoma delle grande vie biliari (of large biliary passages). G. Scagliosi.

72 Influence of Exclusive Milk Diet on the Circulation of the Blood.—Influenza del regime latteo assoluto sulla circolazione del sangue. C. Colombo (Rome).

73 (No. 45.) Ulteriori richerche sul corpi di Negri in rapporto all' etiologia della rabbia (of rabies). L. d'Amato (Naples).

74 Convoluted Tubules in Formol Intoxication.—Le alterazioni dei processi di secrezione dell' epitelio dei tubuli contorti nell' avvelenamento da formolo. L. Girolamo (Palermo).

75 *Su l'efficacia terapeutica del cloruro di bario (barum chlorid). E. Pesci (Turin).

67. **Urea and Ammonia in Symptomatology of Liver Lesions.**—De Rossi reviews the present status of our knowledge on this subject, and analyzes four instructive cases. He thinks that it is established that all the organs form urea in proportion to their size and their nutrient interchanges. It is not the property of the liver alone. Also that the albumin molecule takes various ways to form urea, and not merely that of the ammonium salts alone. Also that the elaboration of urea is, in all probability, not a simple process and, above all, not a single one. The nitrogenous compounds in the urine vary in individual cases of liver affections according to the general conditions of metabolism, not necessarily merely according to the lesion in the liver. The only finding that occurs with any regularity in these cases is an increased amount of NH^3. But even this finding is not directly proportional to the liver lesion, but depends more on the condition of the circulation and on the acidity of the tissues. The practical conclusion from the above is that alimentary ammoniuria is not a reliable test of the functioning of the liver.

68. **Operation for Exstrophy of Bladder.**—Müller proposed in 1903 a mode of operating on subjects with extroversion of

the bladder, but he had not attempted to execute it on the living subject. Muscatello here reports a case in which he followed the suggested technic with one slight modification. The results compel him to rank it above all other methods yet presented. Its principal advantage is that it protects the ureters against contact with feces after they have been transplanted in the sigmoid colon. This is accomplished by dividing the colon and suturing it together again after exclusion of a short portion. The part of the bladder containing the trigone and the mouths of the ureters is then transplanted in the excluded portion of the colon. This brings the ureters into a blind pouch at some distance above the point where the mouth of the pouch opens into the sigmoid colon. The top of the blind pouch formed by the excluded part of the gut is fastened with a few stitches to the colon above the anastomosis, thus retaining the connection between the excluded portion and the rest of the bowel. Müller proposed to fasten the excluded portion to the anterior abdominal wall, which might result in the kinking of the ureters, etc. The patient in the case described had been treated by the Maydl technic at first, but without success. The second intervention, according to the Müller technic, resulted in a complete cure of his deformity. The wound had healed completely in less than four weeks. The article is illustrated.

75. **Barium Chlorid in Therapeutics.**—Pesci has been testing barium chlorid in 40 cases of various affections, including 11 of pleurisy, 8 of valvular defects, 4 of myocarditis, 3 of typhoid, etc. He studied the temperature, pulse, respiration, arterial pressure, urine and ingestion of fluids in the various cases while under the influence of the drug. The results confirm those reported by Schedel, Tabora and others in respect to the efficacy of barium chlorid as a pressure-raising drug and diuretic. The pressure was raised from a few mm. to a maximum of 60 mm. in his experiences, both clinical and experimental. It rose a few hours after taking the chlorid, and constantly increased to a maximum at which it persisted for three or four days, then gradually subsided, but still kept for a time longer above the previous figure. In the very severe cases the pressure sank after the first rise —a sign of grave prognosis. In some cases there was no appreciable action on the pressure, but the general condition showed marked improvement, sometimes with diuresis. In every case, however, the pulse tracings assumed a more normal type, the pulse findings explaining the general improvement that followed the use of the drug. No injurious action was noted in any case. The prompt diuresis that followed in cases of pleurisy was the most gratifying result noted, in some instances the benefit being truly marvelous, the amount of urine excreted increasing from 1,000 to 4,000 c.c. The dosage was 43 cg. in three days, 60 cg. in four days, or 32 cg. in three days. He advocates the drug, therefore, as the best diuretic for pleurisy, the benefit being prompt, constant and superior to that of any other diuretic with which he is familiar. The drug is also indicated in the first stage of disturbance of compensation in a valvular affection, when the circulation is sluggish and the relaxed walls of the arteries allow infiltration of the tissues. Barium chlorid stimulates the musculature of the walls of the arteries. It is also useful for the same reason in infectious disease when the pulse is becoming dicrotic from relaxation of the walls of the vessels and weakness of the intoxicated myocardium. Barium chlorid arrests these disturbances or prevents them by its beneficent influence on the disease itself. Excessively high blood pressure with weak heart is the only contraindication.

Sei-I-Kwai, Tokio.

Last indexed page 255.

76 (XXIII, No. 2.) Tubercular Disease of Breast. Nakamura.
77 Japanese Casualties at the Battle of Port Arthur.
78 (No. 3.) The Japanese Red Cross.
79 (No. 4.) Observations of Infective Myositis in Japan. Ito and Kaminaka. (Concluded.)
80 (No. 6.) *Study of the Anopheles During Hibernation—Untersuchungen über die Anopheles im Winterschlaf. K. Suzuki. (Concluded.)
81 (No. 7.) The Wounded in the Naval Battles. Ibid.
82 (No. 8.) *General Sketch of Equipment of Naval Hospital Ship Kobe-Maru. Arrangements for Conveyance of Patients.
83 (No. 9.) Case of Whooping Cough and Its Pathologic Anatomy.
84 (No. 10.) *Statistics of Japanese Naval Officers and Men Killed or Wounded in Present War.

80. **The Anopheles During Hibernation.**—The results of extensive personal research are given in this illustrated article. Suzuki thinks that the female alone survives the winter. It usually contains fertilized eggs, and as soon as it regains its vitality, when thawed out by warm weather, it lays the eggs. He found mature eggs in both the anopheles and culex during their hibernation.

82. **The Japanese Hospital Ship.**—This floating hospital has been described previously in THE JOURNAL. It did good service during the war of 1894-5 conveying the wounded from the seat of war to the home hospitals. In the illustrated description we note that 126.5 cubic feet of space are allotted to each patient in the general room, while the seriously wounded have each 416 cubic feet and the infectious cases 266.5. The Sei-I-Kwai urges the necessity for installation of a refrigerating machine and electric fans, to complete the equipment.

84. **Killed and Wounded in Japanese Navy.**—The tables give 1,022 killed and 556 severely wounded, the total injured being 2,321. Six navy surgeons have keen killed and six have had dysentery or typhoid fever. Thirteen "medical attendants" were also killed and the same number have had some infectious disease. The medical cases all recovered. The statistics cover the period from Feb. 9 to Oct. 10, 1904. They are grouped by the various engagements, almost all at Port Arthur.

Medicinskoe Obozryenie, Moscow.

Last indexed XLIII, page 642.

85 (LX, No. 21.) *Malarial Affections of Nervous System.—K voprosu o malarilnik zabolyevaniyakh nervoi systemi. V. P. Dobrokhotoff.
86 *Ob etiologii i pathologitcheskoi anatomii ostrago endocardita. E. I. Martzinovsky.
87 (No. 22.) *Perineal Prostatectomy.—O polnoi promezhnostnoi prostatektomii. P. A. Gertzen.
88 *Chronic Suppurative Epididymitis.—K etiologii chronitcheskago gnoinika pridatka yaitchka i k kazuistikye aneurizmi arteriæ spermaticæ. A. P. Krimoff.
89 K voprosu o fistula gastro-colica carcinomatosa. M. P. Kandolovsky.
90 *Cancer ampullæ Vateri. N. E. Kusheff.
91 Yohimbin in 20 Cases of Nervous Impotency.—O terapeutitcheskom dyestvoi yohimbina Riedel'a pri myzhskom bezsilii na nervoi potchvy. E. Hellmer (Vienna).
92 Three Cases of Coincidence of Cancer and Tuberculosis.—K voprosu o sovmyestnosti raka i tuberculeza. M. O. Guberman.
93 (No. 23.) *Sudden Death in Diphtheria.—O pritchinye smerti pri diphtherii. V. Krasnoff.
94 *Ocular Symptom of Diffuse Sclerodermia.—Novii glaznoi symptom razlitoi sklerodermii. C. N. Lozhetchnikoff.
95 *Bone Growth in Heart Valves.—4 slutchai obrazovaniya kosti v serdetchnikh zaslonkakh. I. F. Pozharisky.
96 (No. 24.) *Ob etiologii i patogenezii chorea. Tcherno-Schwartz and Lunz.
97 Pemphigus acutus. L. Rotchmaninoff.

85. **Malarial Affections of Nervous System.**—Dobrokhotoff's article reviews the various nervous affections due to the malarial parasite, the clinical pictures drawn from his own experience and study of the literature. The malarial psychoses generally develop with depression; neuralgia, neuritis and localized focal affections of the central nervous system are not rare. More diffuse troubles, such as multiple sclerosis, also occur as the result of malaria. He gives the details of a striking case of malarial multiple sclerosis. The parasites in the circulation injure the endothelium of the vessels either directly or by their toxins, or by the products of the destroyed red corpuscles. The changes thus induced in the endothelium cause thrombosis in the capillaries, and injure the walls of these vessels. The capillaries in the brain are particularly liable to these injuries, with consecutive hemorrhages. He thinks that these changes in the capillaries explain the conditions noted in the parenchymatous elements of the liver, spleen, kidneys and ganglion cells in malaria. The prognosis is favorable for these nervous affections on a malarial basis, with the exception of the comatous form. They gradually subside under quinin to apparently complete restitution.

86. **Acute Endocarditis.**—Martzinovsky believes that acute endocarditis may result from the action of one or more of several bacteria. At least 10 c.c. of blood should be taken for bacteriologic examination, as the number of microbes in the blood is not necessarily large. Both aërobic and anaërobic cultures should be made, and a negative result does not exclude endocarditis. He was able to discover a connection between the endocarditis and erysipelas, with streptococci, in one case, and between a diplococcus endocarditis and croupous pneumonia in another. He found acute endocarditis in about half of his cases of rheumatism, but the bacteria differed in the various cases, so that the assumption of a single causal germ for acute articular rheumatism seems highly improbable. In his experience, acute endocarditis was frequently followed by progressive anemia and icterus, with urobilin, albumin and casts in the urine. The most promising treatment for acute endocarditis seems to be with an appropriate serum, but this will require early and repeated examination of the blood to disclose the kind of antiserum needed. His article is based on a study of 30 cases.

87. **Perineal Prostatectomy.**—Gerzen reviews the literature on this subject, including much of the American, and describes a case of his own. He commends the perineal operation to his countrymen as destined to an important place in the treatment of enlarged prostate.

88. **Epididymitis.**—In a case described by Krimoff a trauma had induced aneurism of the spermatic artery and epididymitis. The latter may be due to gonorrhea, tuberculosis, syphilis or to casual microbes, as he demonstrates from his experience.

90. **Cancer of Vater's Ampulla.**—Kusheff asserts that cancer at this point can be diagnosed from the progressive emaciation of the subject with icterus but no fever nor catarrhal symptoms on the part of the stomach or intestines. In 2 cases described, cholelithiasis could be excluded as also hypertrophic cirrhosis of the liver. There was no ascites, and no tumor could be palpated. His patients were men of 57 and 75, respectively. The cancer in each was an adenocarcinoma.

93. **Sudden Death in Diphtheria.**—Krasnoff's experimental researches have resulted in a confirmation of his belief that sudden death in diphtheria is due to paralysis of the diaphragm.

94. **Eye Symptom of Diffuse Sclerodermia.**—Lozhetchnikoff calls attention to the bilateral, symmetric immovability of the eyeball in diffuse sclerodermia. The process has evidently involved the muscles of the eye when this stage is reached. He observed this symptom in a girl of 17, and she improved under hot baths and massage until even the eye symptom entirely disappeared. He reports the case as one of cured sclerodermia.

95. **Bone Formation in Heart Valves.**—In the 4 cases described there was an unmistakable formation of bone in some of the valves and even in the heart itself. The subjects were elderly men.

96. **Etiology of Chorea.**—Study of 124 cases of chorea at the Moscow hospitals has established, to the satisfaction of these authors, that articular rheumatism, endocarditis and chorea form a triad for which one and the same cause is responsible.

Roussky Vratch, St. Petersburg.

Last indexed XLIII, page 851.

98 (II, No. 48.) O hedonal-chloroform narcozye. N. P. Kravkoff.
99 Primary Cancer in Vagina with Metastasis Probably by Contact.—O pervitchnom rakye vlagalishtcha v svyazi s utchenïem o previvaemosti raka. V. V. Diakonoff.
100 Varying Capacity of Pravaz Syringes.—Po povodu emkosti prodazhnykh shprintzev Pravaz'a. I. V. Sokhatzki.
101 *Experiences with Talma Operation.—Klinitcheski materiali po operatzii prishivaniya bolshogo salnika k perednoi briushnoi stvenkye. I. I. Kozkovski.
102 *Retinal Hemorrhages in Parasitic Pernicious Anemia.—O krovoizliyaniyakh v syetchatkye pri zlokatchenstvennom glistnom (sherokii lentetz) malakrovii. A. S. Tchemolosoff.
103 Action of Electricity on Microbes.—Issliyedovaniya nad dyestviem electritchestva na mikrobov. S. M. Burak. (Concluded.)
104 (No. 49.) Taste and the Needs of the Organism.—Vkuss i potrebnosti organizma. L. B. Popelsky.
105 Cicatricial Stenosis of Small Intestine.—K kazuistikye rubtzovikh suzhenii tonkikh kishek. B. N. Kholtzoff. One case.
106 Apparatus for Measuring Spinal Curvature. Novii pribor dlya izmyereniya gorbov. N. F. Gun (St. Petersburg).
107 Credé's Ointment in Treatment of Puerperal Fever and Scarlet Fever.—Unguentum Credé pri gnilostnikh zabolyevaniyakh v poslyerodovom periodye i o poslyerodovoi skarlatinye. G. L. Davidoff.
108 To Detect Simulated Deafness.—Novii sposob raspoznavaniya pritvornoi glukhoti. A. A. Govsyeff.
109 Third Tonsil in Infants.—3-ii mindalik v grudnom vozrastye. I. M. Potanoff.
110 *Action of Radium on Typhoid Serum.—O vliyanii radii na agglutiniryiushtchyiu sposobnost sivorotki krovi briushnotyphoznikh bolnikh. P. P. Yagn.

101. **Experiences with Talma Operation.**—Kozlovski gives the particulars of 5 cases of ascites from cirrhosis of the liver, treated by omentopexy. Two patients were apparently much improved but their ultimate fate is not known. Two others were much improved and lived five and eleven months. In one the ascites recurred after a few months. One patient died in less than a month. The particulars of seven similar operations by other Russian surgeons are also given.

102. **Retinal Hemorrhages in Parasitic Anemia.**—Tchemolosoff adds two cases to his first series of four with anemia and retinal hemorrhages due to the presence of the *Ankylostomum duodenale*. All the cases terminated fatally, notwithstanding prompt differentiation and treatment. The eye of one of these patients was submitted to minute microscopic examination, the results of which are given in detail.

110. **Action of Radium on Typhoid Serum.**—Yagn made 19 tests of the serum of typhoid patients, exposing it to the action of the radium rays. He found that long exposure completely checked agglutination. Exposures less than two or three days in length inhibited, but did not completely arrest the agglutinating property.

Books Received.

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

A COMPEND OF THE DISEASES OF THE EYE AND REFRACTION, Including Treatment and Surgery. By George M. Gould, A.M., M.D., and Walter L. Pyle, A.M., M.D., Assistant Surgeon to Wills Eye Hospital, Philadelphia. Third Edition, Revised and Corrected. 109 Illustrations, Several of Which Are in Colors. Cloth. Pp. 295. Price $1.00 net. Philadelphia: P. Blakiston's Son & Co. 1904.

A DIRECTORY OF INSTITUTIONS AND SOCIETIES DEALING WITH TUBERCULOSIS IN THE UNITED STATES AND CANADA. Compiled by Lilian Brandt. Cloth. Pp. 270. Published by the Committee on the Prevention of Tuberculosis of the Charity Organization Society of the City of New York and the National Association for the Study and Prevention of Tuberculosis. 1904.

MANUAL OF OPERATIVE SURGERY. By John Fairbairn Binnie, A.M., C.M. (Aberdeen), Professor of Surgery, Kansas City Medical College. With 559 Illustrations, a Number of Which Are Printed in Colors. Cloth. Pp. 644. Price, $3.00 net. Philadelphia: P. Blakiston's Son & Co. 1905.

ZEITSCHRIFT FUER ORTHOPADISCHE CHIRURGIE Einschliesslich der Heilgymnastik und Massage. Dr. Albert Hoffa. XIII. Band. 4. Heft. Mit 74 in den text Gedruckten Arbildungen. Paper. Pp. 862. Stuttgart. Verlag von Ferdinand Enke. 1904.

THE DISEASES OF SOCIETY (The Vice and Crime Problem). By G. Frank Lydston, M.D., Professor of Genito-urinary Surgery, State University of Illinois. Cloth. Pp. 624. Price, $3.00 net. Philadelphia: J. B. Lippincott Co. 1904.

THE SIXTH ANNUAL REPORT OF THE INDIANA STATE BOARD OF MEDICAL REGISTRATION AND EXAMINATION for the Year Ending Dec. 31, 1903. To the Governor. Cloth. Pp. 272. Indianapolis: Wm. B. Burford. 1904.

THIRTEENTH REPORT OF THE STATE BOARD OF HEALTH OF THE STATE OF MAINE for the Two Years Ending Dec. 31, 1903. 1902-1903. Paper. Pp. 270. Augusta, Maine: Kennebec Journal Print. 1904.

TRANSACTIONS OF THE SOUTH DAKOTA STATE MEDICAL ASSOCIATION FOR THE YEARS 1903-1904. Paper. Pp. 128. Published by the Association. Aberdeen, S. D.: News Printing Co. 1904.

FIRST BIENNIAL REPORT OF THE STATE BOARD OF MEDICAL EXAMINERS OF THE STATE OF SOUTH DAKOTA. March 27, 1904, to the Present Time. Aberdeen: News Printing Co. 1904.

NEW CLINICAL REPORTS. RESULTS OBTAINED BY THE USE OF GARDNER'S PERFECTED PHARMACEUTICAL PRODUCTS. New York. 1904. Cloth. Pp. 108.

EIGHTH BIENNIAL REPORT OF THE DELAWARE STATE HOSPITAL AT FARNHURST, December, 1904. Paper. Pp. 94. Wilmington: Sunday Star Print.